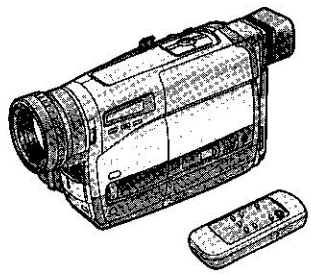
Panasonic

VHS-C Movie Camera

Operating Instructions

NV-RZ1
NV-RZ2



Model No. NV-RZ1
NV-RZ2

VHS C PAL

Before use, please read these instructions completely.

VQT8472

Dear Customer,

We would like to take this opportunity to thank you for purchasing this Panasonic Movie Camera.
These operating Instructions are for the two Movie Camera models NV-RZ1B and NV-RZ2B. However, all illustrations show the model NV-RZ2B.
Please read these Operating Instructions carefully and keep them handy for future reference.

Information for Your Safety

VHS-C Movie Camera
- The rating plate is on the bottom side of the Movie Camera.

AC Adaptor
- The rating plate is on the bottom side of the AC Adaptor.
- As this AC Adaptor gets hot during use, operate it in a well-ventilated place; do not use it in a tight enclosure.

Caution for AC Mains Lead

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced, please ensure that the replacement fuse has a rating of 5 amperes and it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ⓐ or the BSI mark ⓚ on the body of the fuse.

If the plug contains a removable fuse cover, you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME, THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO A 13-AMPERE SOCKET.

If a new plug is to be fitted, please follow the wiring code described on the right.
If in any doubt, please consult a qualified electrician.

■ IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

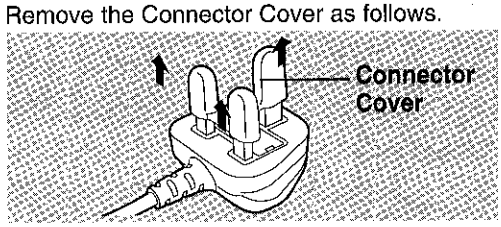
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol ⏚.

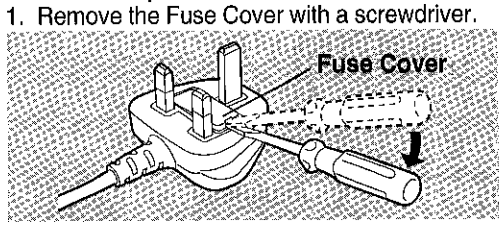
■ Before Use

Remove the Connector Cover as follows.

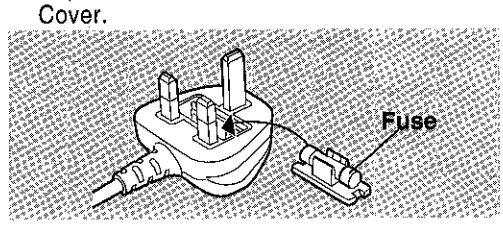


■ How to replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



2. Replace the fuse and attach the Fuse Cover.



■WARNING

To reduce the risk of fire or shock hazard and annoying interference, use only the recommended accessories and do not expose this equipment to rain or moisture. Do not remove the cover (or back); there are no user serviceable parts inside. Refer servicing to qualified service personnel.

■Observe copyright laws.

Recording of pre-recorded tapes or discs or other published or broadcast material for purposes other than your own private use may infringe copyright laws. Even for the purpose of private use, recording of certain material may be restricted.

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Check List for the Standard Accessories

AC Adaptor Set

..... AC Adaptor (VSK0541)

..... AC Mains Lead (VJA0940)

..... DC Input Lead (VJA1128)

..... Battery Pack (CGR-V610)

..... AV Cable (VFA0039)

..... Shoulder Strap (VFC3299)

..... Button-Type Battery (CR2025)

..... Remote Controller (EUR646570)

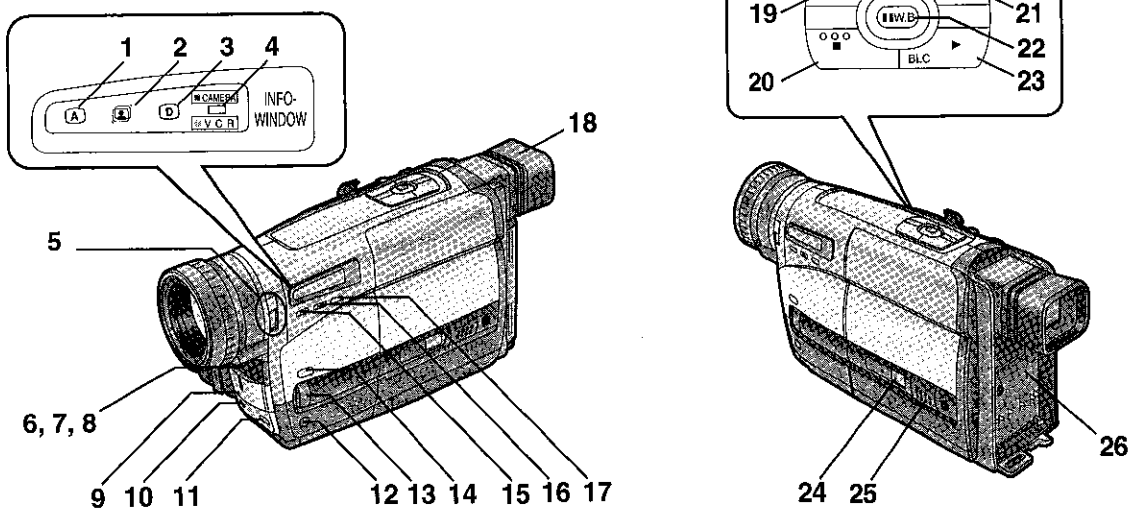
..... Batteries for Remote Controller (AAA, UM-4 or R03)

(Only on model NV-RZ2B)

●For purchasing additional Battery Packs, see the list of optional accessories on p. 64.

Controls and Functions

For more details, see the pages indicated in brackets.



1 Auto Mode Indication Lamp [Ⓐ] (p. 22)

2 Super Image Stabilizer Indication Lamp [Ⓘ] (p. 44, 46)

3 Digital Effect Indication Lamp [Ⓓ] (p. 44, 46, 48)

4 Camera Mode Lamp [CAMERA] (p. 22)
VCR Mode Lamp [VCR] (p. 30)
Camera Mode: The lamp lights red.
VCR Mode: The lamp lights green.

5 0-Lux Recording Switch [0 LUX OFF/ON] (p. 58)

6 White Balance Sensor (p. 54)

7 Remote Control Sensor (p. 60)
(Only on model NV-RZ2B)

8 Built-in Infra red Beam Emitters (p. 58)

9 Microphone

10 Tally Lamp (p. 23)

11 Fade Button [FADE] (p. 36, 48)

12 Focus Button [FOCUS] (p. 26)
Item Set Button [SET] (p. 12)
Tracking Button (p. 32)

13 Multi-Function Dial [▲▼/MF/TRACKING] (p. 12, 26, 32)

14 Menu Button [MENU] (p. 12)

15 Auto Exposure Selector Button [PROG. AE] (p. 26, 42, 54)

16 Digital Image Store Button [STORE] (p. 38)
Digital Image Superimpose Button [OFF/ON] (p. 38, 40)

17 Colour Selector Button for Digital Image [COLOUR] (p. 38)

18 Eyecup

19 Reverse Search Button [–SEARCH] (p. 24)
Rewind/Review/High-Speed Rewind Button [◀◀] (p. 30, 32)
Recording Check Button [⟲] (p. 24)

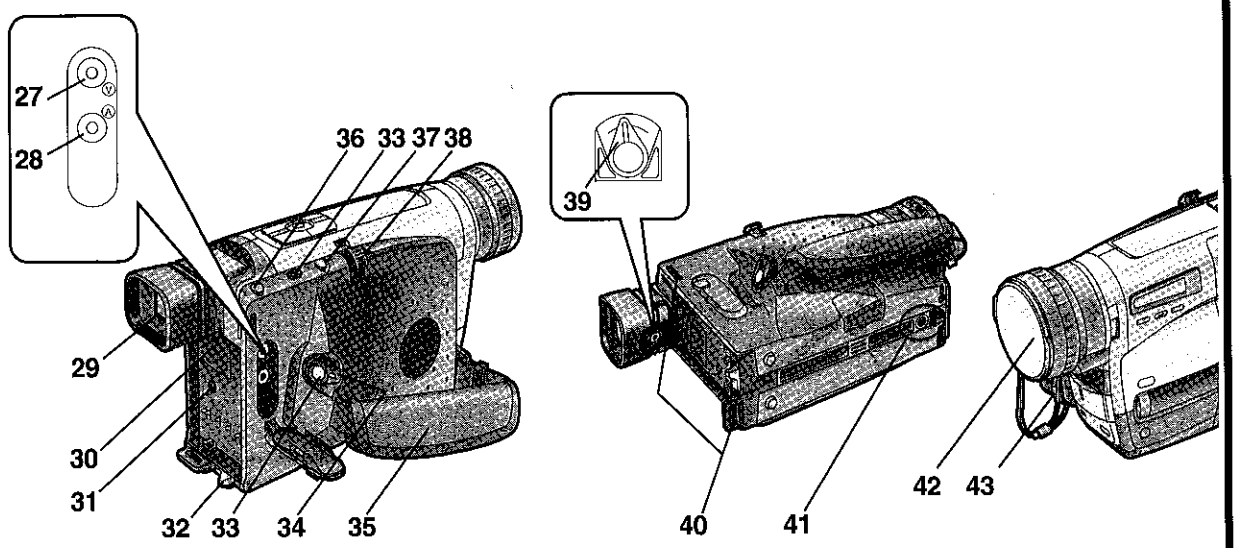
20 Stop Button [■] (p. 30)

21 Forward Search Button [SEARCH+] (p. 24)
Fast Forward/Cue Button [▶▶] (p. 30, 32)

22 White Balance Button [W.B] (p. 54)
Pause Button [❚❚] (p. 32)

23 Playback Button [▶] (p. 30)
Backlight Button [BLC] (p. 24)

24 Cassette Compartment Window (p. 18)



25 Cassette Compartment Lock Button [LOCK] (p. 18)

26 Battery Holder (p. 8)

27 Video Output Socket [Ⓥ] (p. 34, 62)

28 Audio Output Socket [Ⓐ] (p. 34, 62)

29 Viewfinder (p. 17, 20, 68, 72)

> Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the Viewfinder screen, the whole screen may have a slight colour cast, and flickering may occur. However, this is not a malfunction and does not affect the recorded picture.

30 Cover of the Button-type Battery's Compartment [BACKUP BATTERY] (p. 11)

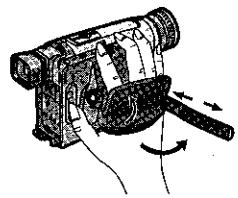
31 DC Input Socket [DC IN] (p. 6)

32 Battery Eject Lever [◁BATTERY EJECT] (p. 9)

33 Recording Start/Stop Buttons (p. 22)
Use either of these buttons depending on the recording angle.

34 Off/On Mode Selector Switch [CAMERA/OFF/VCR] (p. 12, 22, 30, 34)

35 Grip Belt
You can adjust the Grip Belt to the size of your hand.



Open the Grip Belt Cover and adjust the length of the Grip Belt.

36 Cassette Eject Button [⏏ EJECT] (p. 18, 34)

37 Date/Time/Title Button [DATE/TITLE] (p. 29)

38 Zoom Lever [W/T] (p. 28, 46)

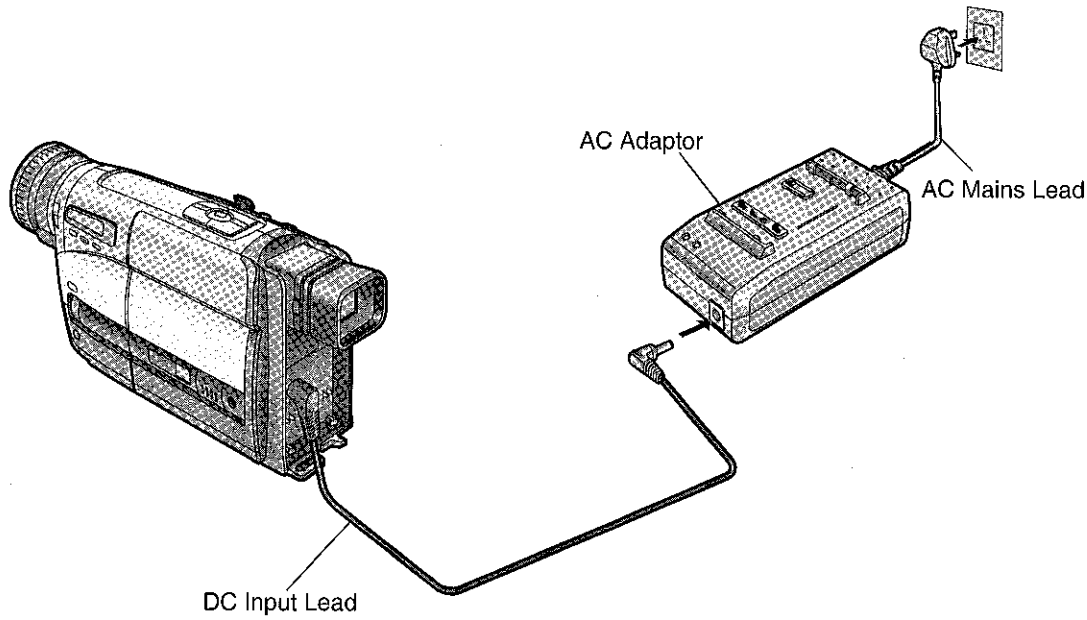
39 Eyepiece Corrector Lever (p. 20)

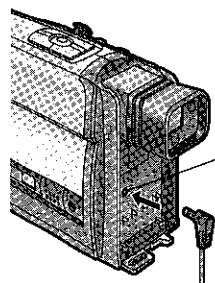
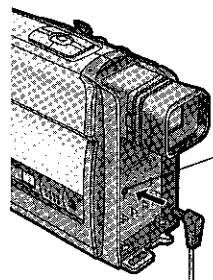
40 Shoulder Strap Holders (p. 68)

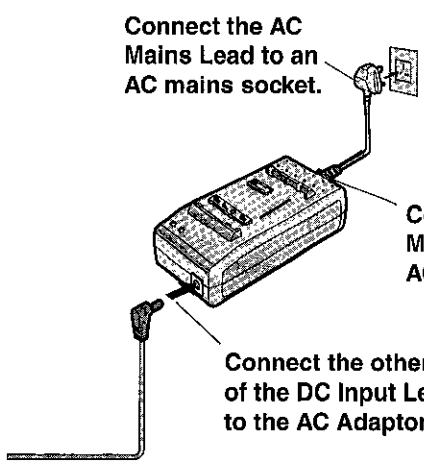
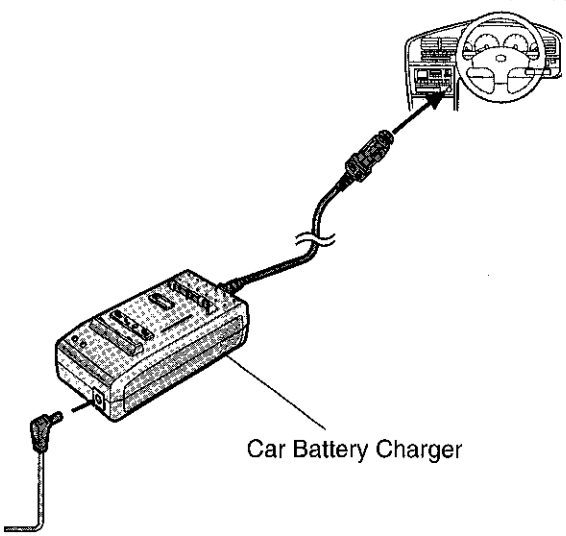
41 Tripod Receptacle
Attach a tripod (optional) to this receptacle.

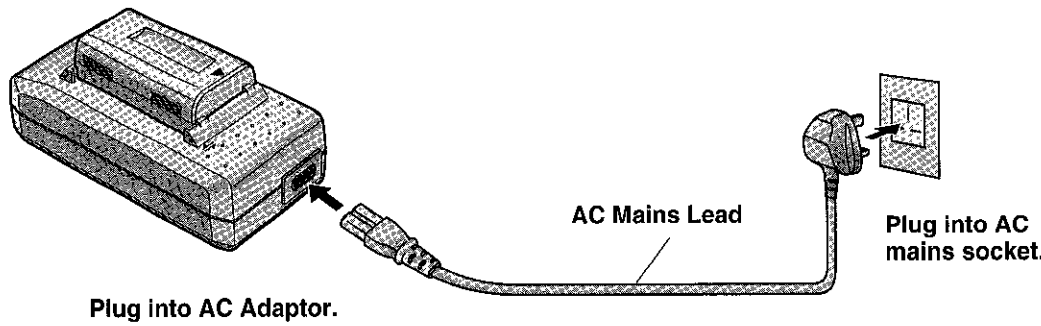
42 Lens Cap (p. 21, 35, 54)

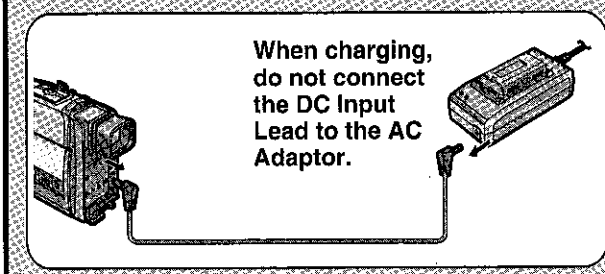
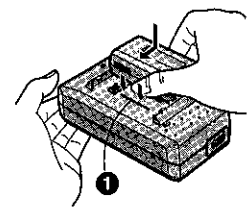
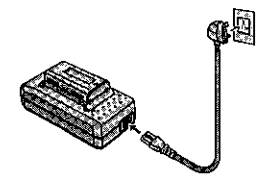
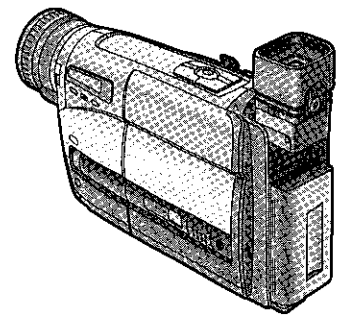
43 Lens Cap Holder (p. 21)



Title	Procedure
The 3 Types of Power Supply 1) AC Adaptor (supplied) to supply power from an AC mains socket 2) Car Battery Charger (optional) to supply power from the cigarette lighter socket in a vehicle 3) Battery (supplied) (p. 8) **1) Supplying Power from an AC Mains Socket**	 **Connect the DC Input Lead to the [DC IN] Socket on the Movie Camera.**
2) Supplying Power from the Cigarette Lighter Socket in a Car The use of the Car Battery Charger (VW-KBC7E; optional) makes it possible to supply power to the Movie Camera in a car for recording and playback.	**Start the engine and then plug the Car Battery Charger into the Cigarette Lighter Socket.**  **Connect the DC Input Lead to the [DC IN] Socket on the Movie Camera.**

	Remarks, etc.
	•Always set the [CAMERA/OFF/VCR] Switch to [OFF] before disconnecting the AC Mains Lead. •**If you use the Movie Camera for a long time, it becomes warm. However, this is normal.** •Do not use the AC Adaptor for any purposes other than supplying the unit with power or charging the Battery. •When not using the AC Adaptor, unplug its AC Mains Lead from the AC mains socket. To unplug, pull it by the plug, not by the lead. •This AC Adaptor works on any mains supply voltage between 100 and 240 V, and any frequency between 50 and 60 Hz. For use in other countries, an adaptor plug may be necessary.
	•**After use, be sure to disconnect the Car Battery Charger from the cigarette lighter socket.** •The Car Battery Charger can be used with 12 V and 24 V DC negative-grounded vehicles. •Do not start the car engine while the Movie Camera is being powered by the car battery. •If the voltage drops suddenly e.g. because the car air-conditioner is turned on, the Movie Camera is automatically turned off to protect it. Wait about 10 seconds before turning it on again. •If the Car Battery Charger is already connected to the cigarette lighter socket when you start the engine, the fuse in the Car Battery Charger's plug may blow out. •Also read the operating instructions of the Car Battery Charger.



Title	Procedure
The 3 Types of Power Supply (cont.) **3) Supplying Power with the Battery** Before use, fully charge the Battery.  **When charging, do not connect the DC Input Lead to the AC Adaptor.**	**1** **To attach the Battery, align it with line ❶, push it down and slide it in the direction of the arrow.**  **2** **Connect the AC Mains Lead to the AC Adaptor and an AC mains socket.** • The [POWER] Lamp lights and then the [CHARGE] Lamp flashes and charging starts.  **5** **Press the bottom of the Battery toward the Movie Camera until it locks with a click.** 

Charging Time and Maximum Time for Continuous Recording

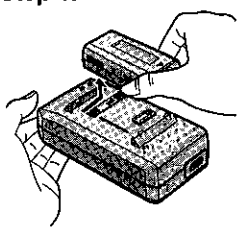
Battery No.	Charging Time for a Full Charge	Max. Continuous Recording Time	Max. Continuous Recording Time for Approx. 30-Minute Charging
CGR-V610 (supplied)	1 h 20 min.	2 h.	50 min.
CGR-V620	2 h 25 min.	4 h.	50 min.
CGR-V816	5 h 10 min.	8 h.	50 min

(The times shown in the above chart are approximations.)
The times listed above for your information indicate the duration of recording performed at an ambient temperature of 25°C and 60% relative humidity. The charging time may be longer when you charge the Battery at higher or lower temperature.

- During recording or charging, the Battery becomes warm. However, this is normal.
- If you do not use the Battery for a long time, please read "Precautions for Storage" (p. 67).
- The remaining battery operation time can be confirmed in the Viewfinder.
- For details about the Remaining Battery Power Indication, read "Checking the Remaining Battery Power". (p. 10)

3

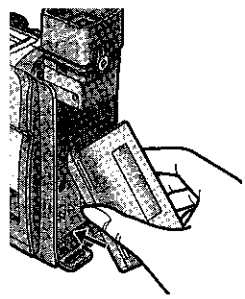
Remove the Battery by sliding it in the opposite direction of Step *1*.



- Also disconnect the AC Mains Lead.

4

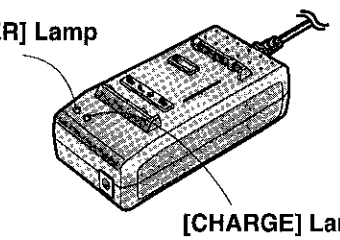
If necessary, adjust the angle of the Viewfinder by tilting it upward and then insert the Battery with its top into the top Battery Holder.



[CHARGE] Lamp

Flashing: During charging.
Lit (continuously): The Battery can already be used to operate the Movie Camera but it is not yet fully charged. (Approximately 30-minute battery charge)
Off: The Battery is fully charged.

[POWER] Lamp



[CHARGE] Lamp

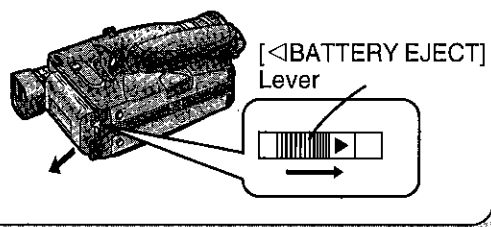
Remarks, etc.

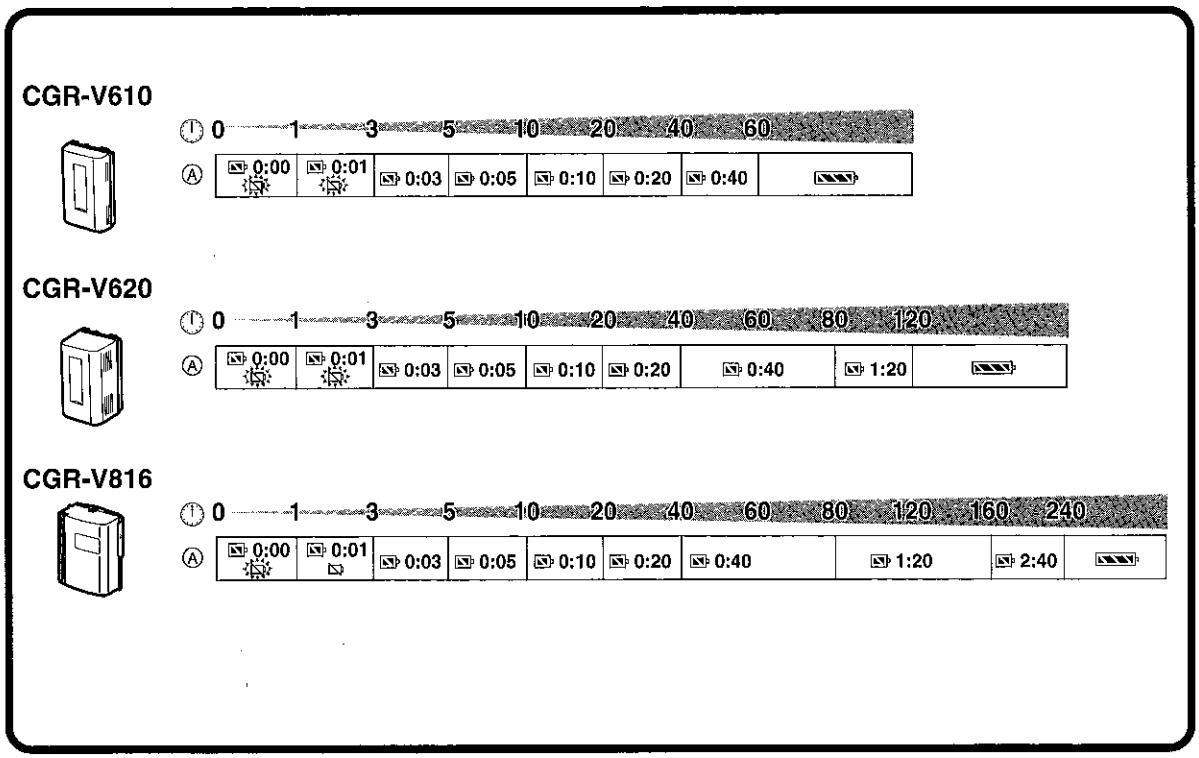
- Be sure to insert the mains plug completely into the correct socket.
- If the [CHARGE] Lamp does not flash even though the Battery is attached, remove the Battery and then re-attach it.
- If you have any problems with charging the Battery, refer to page 76.
- Charge the Battery at a room temperature between 10°C and 30°C.
- If you charge the Battery when it is not yet discharged, the [CHARGE] Lamp may flash briefly and then go out. This indicates that the Battery is fully charged. Therefore, this is not an indication of a malfunction.

Removing the Battery from the Movie Camera

Hold the Battery firmly to prevent it from dropping and pull it off while sliding the [◁BATTERY EJECT] Lever in the direction of the arrow.

- Be careful not to drop the Battery by accident.
- Before removing the Battery, set the [CAMERA/OFF/VCR] Switch to [OFF].
- Never remove the Battery during recording or playback, because the tape would remain in contact with the video heads and this can cause damage to the heads and tape.





■ Checking the Remaining Battery Power

You can confirm the remaining charge in the attached Battery in the Viewfinder. This also shows you approximately how much more continuous recording time you can get from the attached Battery. The indicated time does not change in 1-minute steps.
The above illustrations show how the Remaining Battery Operation Time Indication changes according to the remaining operation time.

Ⓘ: **Actual Remaining Battery Operation Time**
Ⓐ: **Remaining Battery Operation Time Indication.**

Remaining Battery Power & Operation Time Indication

This Indication shows the remaining duration of continuous recording at an ambient temperature of 25°C when a fully charged Battery was attached.Therefore, in the following cases, the actual available recording time is different from the times shown above:

When Recording Is Not Performed Continuously

In most cases, you will frequently start and stop recording, turn the Movie Camera on and off, and use the zoom and other functions, all of which consume power. Therefore, the actual available recording time from the Battery is approximately 30-50% shorter than listed. (p. 9)

When the Ambient Temperature Is Extremely Low or Extremely High

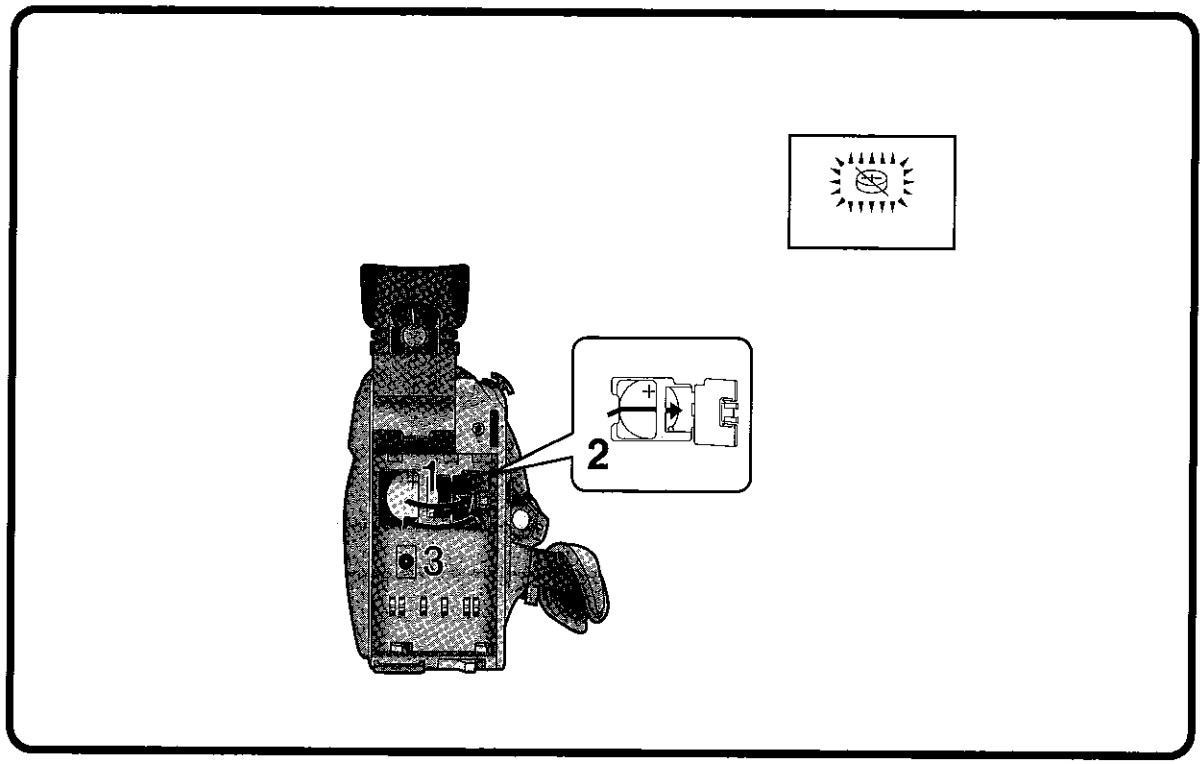
The characteristics of the Battery vary according to the ambient temperature, and at a very low temperature, the possible recording time becomes extremely short.
In addition, the Remaining Battery Operation Time Indication on the Movie Camera decreases a little faster than at an ambient temperature of 25°C. (At a higher temperature, it tends to decrease more slowly.)

When the Service Life of the Battery Has Reached Its End

When the operation time even after full charging is too short for normal use, the service life of the Battery has reached its end. (p. 76)

Inserting the Button-type Battery

Before setting the date and time, insert the button-type battery (supplied).



1 **Open the [BACKUP BATTERY] Cover.**

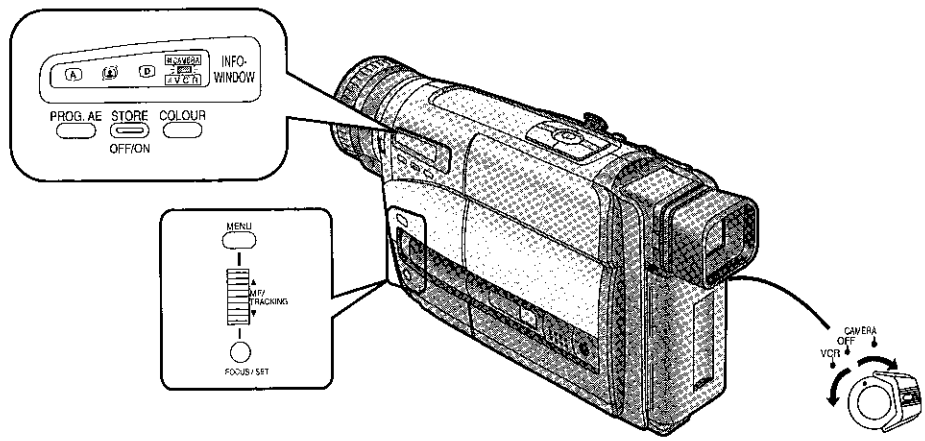
2 **Insert the button-type battery so that its (+) side is visible.**

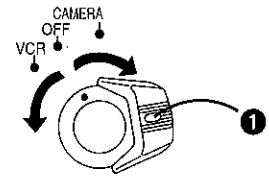
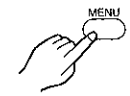
3 **Close the [BACKUP BATTERY] Cover.**

- Before inserting or removing the button-type battery, be sure to set the [CAMERA/OFF/VCR] Switch to [OFF].
- When the button-type battery is exhausted, the [⊘] Indication flashes. In this case, replace it with a new CR2025 battery. (The life of the battery is about 3 years.)
- To make it easier to remove the button-type battery, use a pointed object.
- When you remove the button-type battery, be careful not to drop it.
- **Keep the button-type battery out of the reach of children.**
- Make sure you insert the battery with its poles correctly aligned.
- The internal clock works even when the Movie Camera is turned off, and it consumes power from the button-type battery.

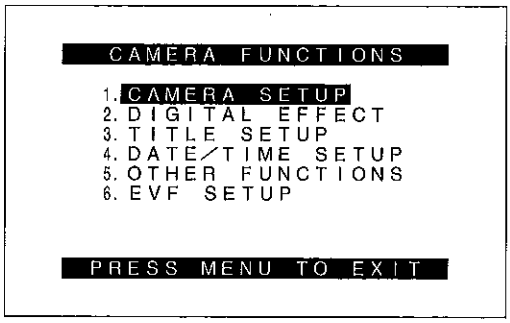
Information for your safety

WARNING
"THE LITHIUM BATTERY IS A CRITICAL COMPONENT (TYPE NUMBER CR2025 MANUFACTURED BY PANASONIC).
IT MUST NEVER BE SUBJECTED TO EXCESSIVE HEAT OR DISCHARGE. IT MUST THEREFORE ONLY BE FITTED IN EQUIPMENT DESIGNED SPECIFICALLY FOR ITS USE.
REPLACEMENT BATTERIES MUST BE OF THE SAME TYPE AND MANUFACTURER.
THEY MUST BE FITTED IN THE SAME MANNER AND LOCATION AS THE ORIGINAL BATTERY, WITH THE CORRECT POLARITY CONNECTIONS OBSERVED.
DO NOT ATTEMPT TO RE-CHARGE THE OLD BATTERY OR RE-USE IT FOR ANY OTHER PURPOSE. IT SHOULD BE DISPOSED OF IN WASTE PRODUCTS DESTINED FOR BURIAL RATHER THAN INCINERATION."

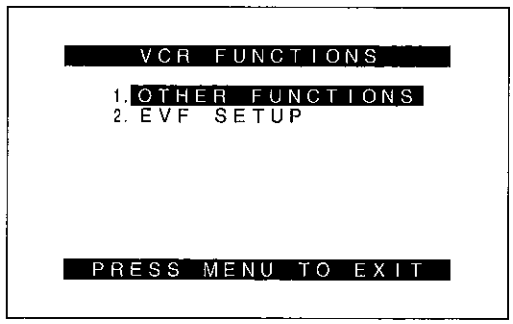


Title	Procedure	
Using the Menu Screen This Movie Camera displays the settings of various functions in Menus to make it easy to select the desired functions and settings.	**1** **Set the [CAMERA/OFF/ VCR] Switch to [CAMERA] or [VCR].** Turn the switch while pressing the button ❶.  	**2** **Press the [MENU] Button.** When you press this button while the [CAMERA] Lamp is lit in red, the Camera Mode Menu ① appears. When you press this button while the [VCR] Lamp is lit in green, the VCR Mode Menu ② appears. 
	5 **Turn the [▲▼] Dial to select the item to be set.** 	**6** **Press the [SET] Button to set the selected item to the desired mode.** Every press moves the cursor [▶] to the next mode.

① **Camera Mode Main-Menu**



② **VCR Mode Main-Menu**



3

Turn the [▲▼] Dial to select the desired sub-menu.

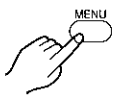
Turning the [▲▼] Dial changes the highlighted item.

4

Press the [SET] Button to display the selected sub-menu.

■ Exiting the Menu

Press the [MENU] Button again.



Remarks, etc.

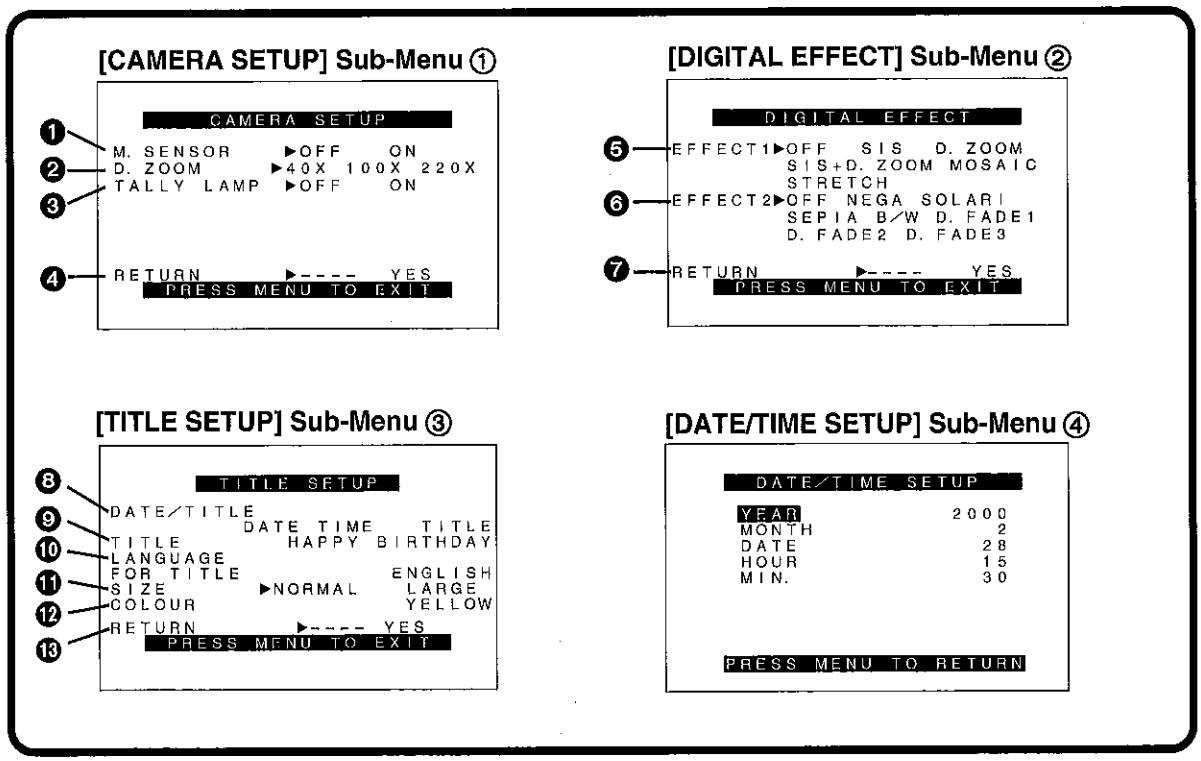
Note About the Settings Made on the Menu

The settings you selected on the Menu are maintained when you turn the Movie Camera off. However, if you disconnect the power supply unit (Battery or AC Adaptor) from the Movie Camera before turning it off, the selected settings may not be maintained.

- You can display the menu during playback, but not during recording. Also, it is possible to start playback while the menu is displayed, but if you start recording, the displayed menu disappears.
- The method for making settings on the [DATE/TIME SETUP] Sub-Menu (p. 16) and [EVF SETUP] Sub-Menu (p. 17) differs slightly from that of other Sub-Menus.

Menu Functions

Camera Functions Menu



The illustrations of the menus are intended for explaining the functions; the actual menus look somewhat different.

Camera Mode Main-Menu [CAMERA FUNCTIONS]

1. **CAMERA SETUP**
2. **DIGITAL EFFECT**
3. **TITLE SETUP**
4. **DATE/TIME SETUP**
5. **OTHER FUNCTIONS**
6. **EVF SETUP**

[CAMERA SETUP] Sub-Menu ①

❶ **Motion-Sensor-Controlled Recording [M.SENSOR] (p. 56)**

❷ **Digital Zoom [D.ZOOM] (p. 46)**

❸ **Recording Lamp [TALLY LAMP] (p. 23)**

❹ **Returning to the Previous Menu [RETURN]**
If you set [RETURN] to [YES], the Menu changes back to the Main-Menu.

[DIGITAL EFFECT] Sub-Menu ②

❺ **Digital Effects 1 [EFFECT1] (p. 44, 46, 48)**

❻ **Digital Effects 2 [EFFECT2] (p. 44, 48)**

❼ **Returning to the Previous Menu [RETURN]**

[TITLE SETUP] Sub-Menu ③

❽ **Date/Time/Title Indication [DATE/TITLE] (p. 29)**

❾ **Title [TITLE] (p. 50)**

❿ **Language of the Title [LANGUAGE FOR TITLE] (p. 50)**

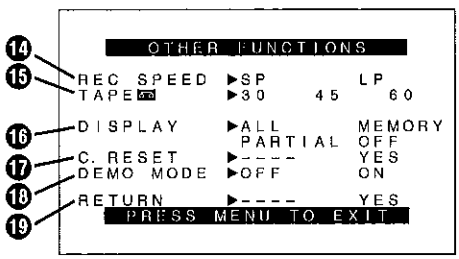
⓫ **Size of the Title [SIZE] (p. 52)**

⓬ **Colour of the Date/Time/Title Indication [COLOUR] (p. 52)**

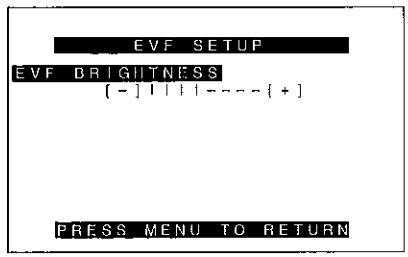
⓭ **Returning to the Previous Menu [RETURN]**

[DATE/TIME SETUP] Sub-Menu ④ (p. 16)

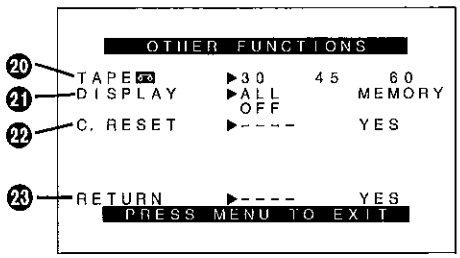
[OTHER FUNCTIONS] Sub-Menu ⑤



[EVF SETUP] Sub-Menu ⑥



[OTHER FUNCTIONS] Sub-Menu in VCR Mode ⑦



[OTHER FUNCTIONS] Sub-Menu ⑤

⑭ Recording Speed Mode [REC SPEED]
[SP] means Standard Play. Recording is possible for the time indicated on the cassette. [LP] means Long Play. Recording is possible for approximately double the time indicated on the cassette. However, the quality of the pictures recorded in the LP Mode is slightly inferior compared to those recorded in the SP Mode.

⑮ Tape Length [TAPE] (p. 19)

⑯ Counter Display Mode [DISPLAY] (p. 73)

⑰ Counter Reset [C.RESET] (p. 71)

⑱ Demonstration Mode [DEMO MODE] (p. 71)

⑲ Returning to the Main-Menu [RETURN]

[EVF SETUP] Sub-Menu ⑥ (p. 17)

VCR Mode Main-Menu
[VCR FUNCTIONS] Sub-Menu

1. **OTHER FUNCTIONS**
2. **EVF SETUP**

[OTHER FUNCTIONS] Sub-Menu ⑦

⑳ Tape Length [TAPE] (p. 19)

㉑ Counter Display Mode [DISPLAY] (p. 73)

㉒ Counter Reset [C.RESET] (p. 71)

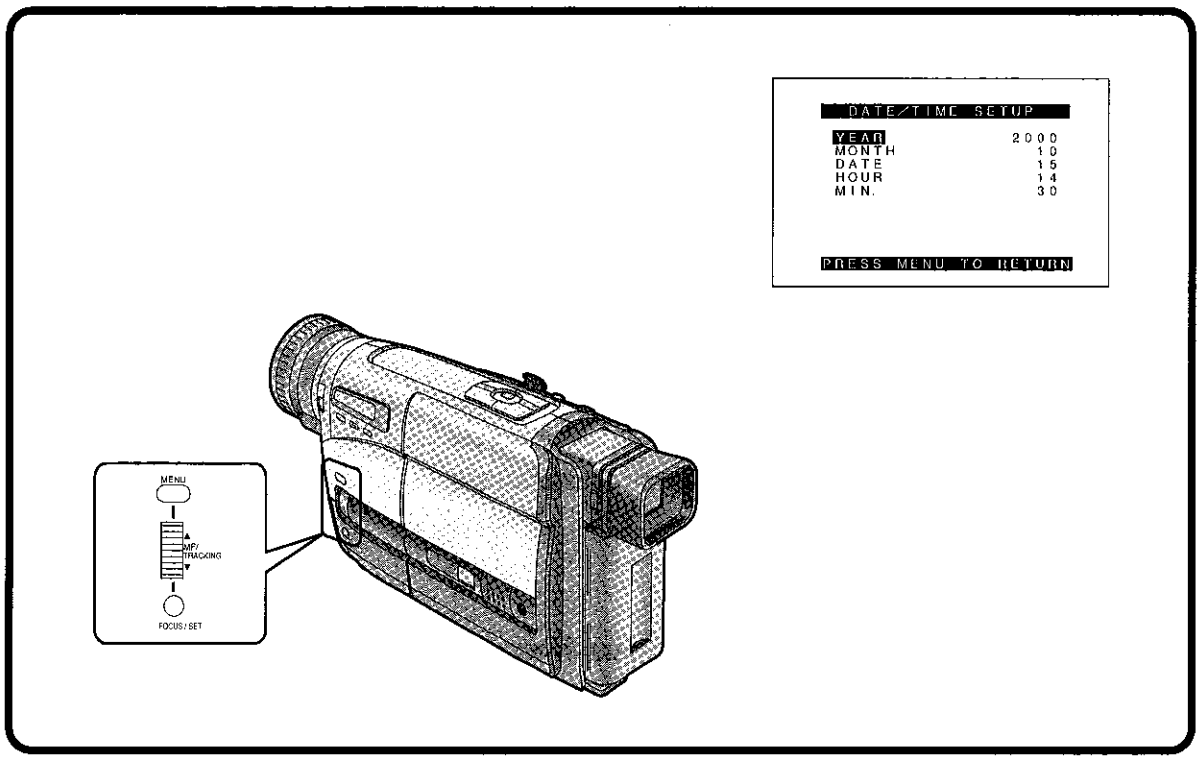
㉓ Returning to the Main-Menu [RETURN]

[EVF SETUP] Sub-Menu (p. 17)

All items on the [EVF SETUP] Sub-Menu are the same as those on the [EVF SETUP] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu.

Setting the Date and Time

If you select the [DATE/TIME SETUP] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu, the menu shown below appears.



The initial setting of date and time is 0:00, 1st January, 2000.

For example: To set the clock to 15th October 2000, 14:30.

1 **Turn the [▲▼] Dial to set to [2000].**
- The years change in the following order: ...1990...1991...2000...2089...1990...

2 **Press the [SET] Button to select [MONTH].**

3 **Turn the [▲▼] Dial to set to [10].**

4 **Press the [SET] Button to select [DATE].**

5 **Turn the [▲▼] Dial to set to [15].**

6 **Press the [SET] Button to select [HOUR].**

7 **Turn the [▲▼] Dial to set to [14].**

8 **Press the [SET] Button to select [MIN.].**

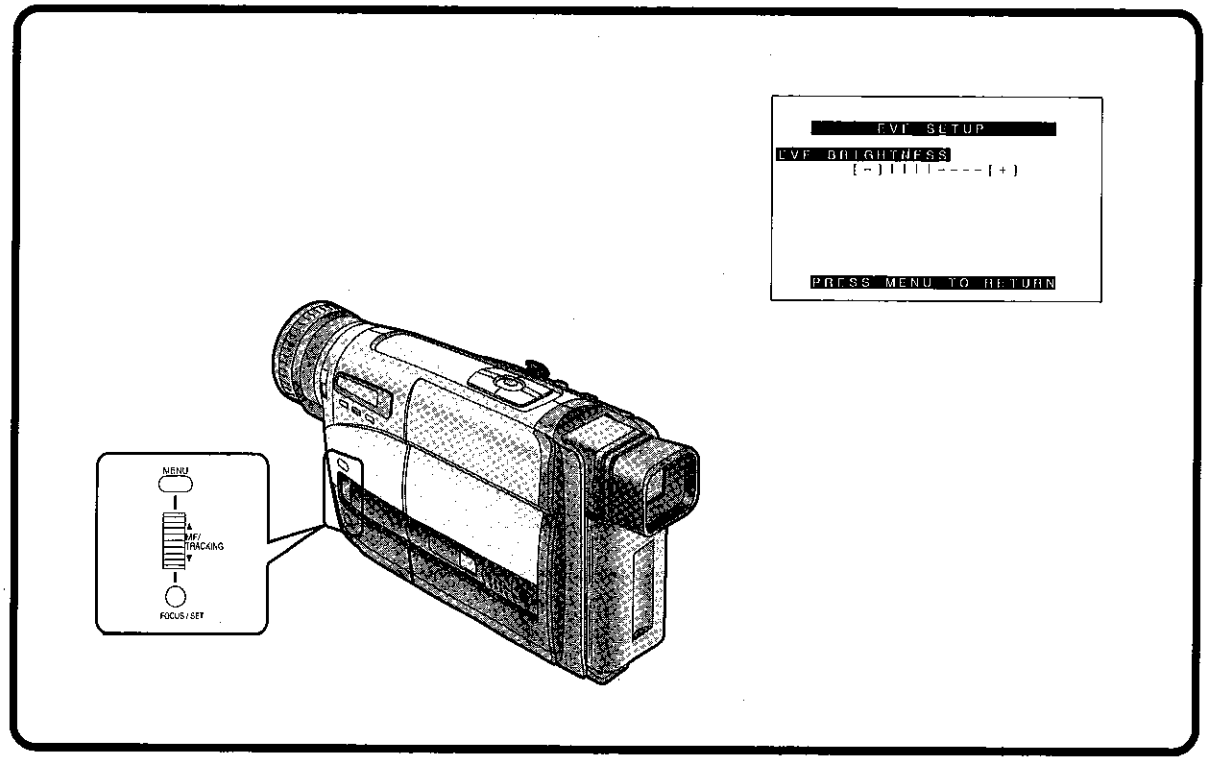
9 **Turn the [▲▼] Dial to set to [30].**

10 **Press the [MENU] Button to finish the date and time setting.**
The operation of the clock starts from [00] seconds.
Pressing the button one more time makes the menu disappear.

- If you select the [DATE/TIME SETUP] Sub-Menu when the button-type battery is not inserted into the Movie Camera or is exhausted, the Main-Menu disappears and the [⊗] Indication flashes instead. Insert a new button-type battery (p.11) and then set the date and time again.
- As the Movie Camera's built-in clock is subject to slight imprecision, be sure to check the indicated time before recording.
- The clock employs the 24-hour system.

Adjusting the Viewfinder

If you select the [EVF SETUP] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu, the following items are displayed.

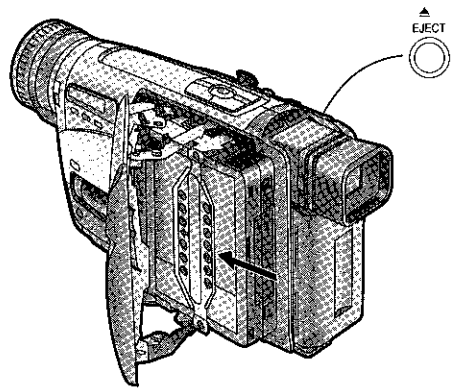


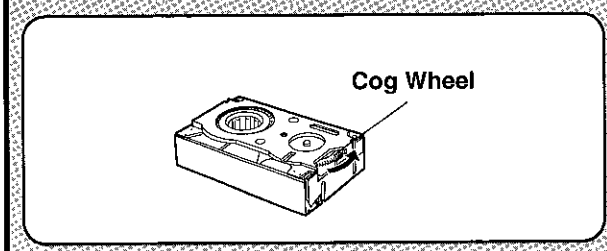
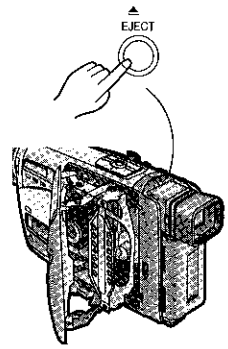
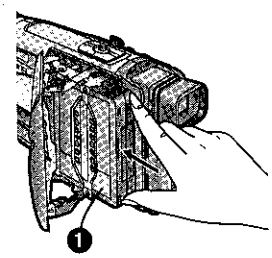
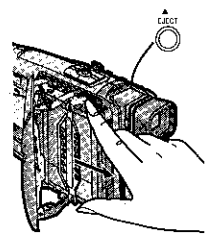
Viewfinder Brightness [EVF BRIGHTNESS]
To adjust the brightness of the Viewfinder. The Bar Indication is divided into 8 steps. The more vertical bars are shown, the brighter is the screen.

1 Turn the [▲▼] Dial to increase or decrease the vertical bars of the Bar Indication.
The Bar Indication is divided into 8 steps. The more vertical bars are shown, the stronger is the brightness.

Ejecting the Menu
Press the [MENU]Button twice.

- These adjustments have no influence on the actual picture recorded.

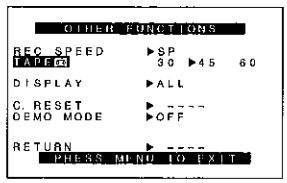


Title	Procedure
Inserting a Cassette If the AC Adaptor or Battery is used to supply power, it is possible to insert or eject the cassette without turning on the Movie Camera. Before inserting the cassette, make sure that the tape is tight. If it is loose, turn the cog wheel in the direction of the arrow to tighten it.  	**1** **Push the [▲ EJECT] Button.**  **2** **Insert the cassette with its window in positon ❶.**  **Ejecting the Cassette** Push the [▲ EJECT] Button and pull out the cassette. Close the Cassette Compartment by pressing the [LOCK] Button. 

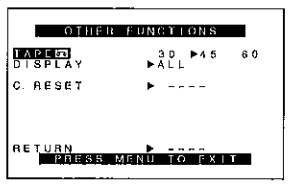
●Selecting the Correct Tape Length

To ensure that the Remaining Tape Time Indication displayed during recording and playback is correct, you need to set the tape length that matches that of the inserted cassette.

Camera Mode



VCR Mode



1 Press the [MENU] Button.
- The Main-Menu appears.

2 Turn the [▲▼] Dial to select [OTHER FUNCTIONS] and then press the [SET] Button.

3 Turn the [▲▼] Dial to select [TAPE].

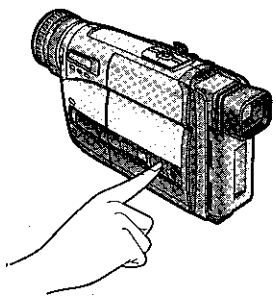
4 Press the [SET] Button to select the correct tape length.
- The selected tape length is marked with the [▶] Mark.
- The Tape Length Indications change in the following order:

→ [30] → [45] → [60] →
([30]) ([45]) ([60])

5 Press the [MENU] Button to exit the Menu.

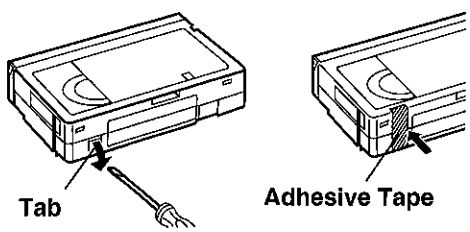
3

Close the Cassette Compartment by pressing the [LOCK] Button.



Preventing Accidental Erasure of Recordings

Break off the tab with a screwdriver in the direction of the arrow prevents recording. To record again, cover the hole frimly with two layers of adhesive tape.

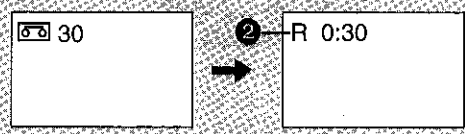


Remarks, etc.

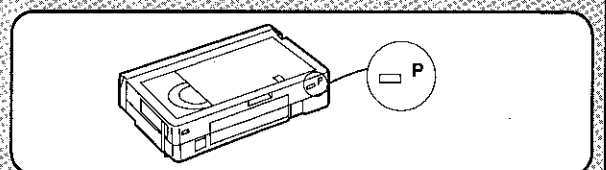
- It is not possible to take out the cassette during recording.
- Do not insert and take out the cassette repeatedly. This could cause the tape to become loose or damaged.
- If a cassette with broken out erasure prevention tab is inserted, the " " indication flashes.

Confirming the Remaining Tape Time

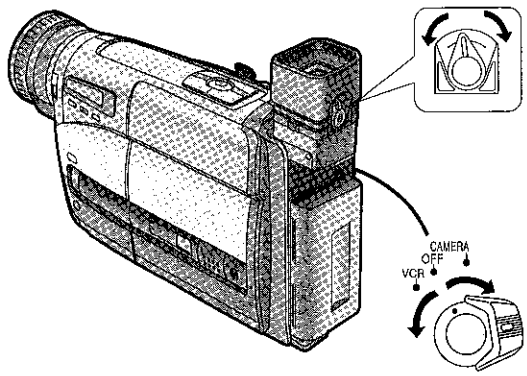
During recording and playback, the Remaining Tape Time Indication ❷ is automatically displayed, so you always know how much time you have left on the cassette.

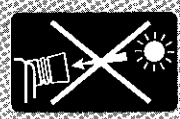
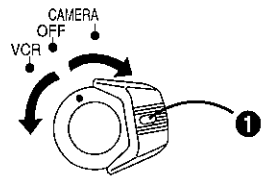
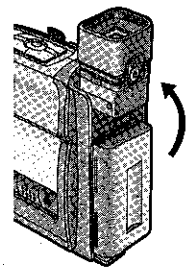


- If you start recording or playback, the [R] Indication flashes for a few seconds, while the Movie Camera calculates the remaining tape time.
- When the remaining tape time is less than 2 minutes, the [R] Indication and the Remaining Tape Time Indication start to flash.
- This function is only meant as a guide. The Remaining Tape Time Indication is subject to impreciision due to either user error (such as incorrectly selected tape length) or stretching of the tape.
- When you use a cassette bearing the [P] mark or other special types of cassettes, the Remaining Tape Time Indication may not be very precise.



Eyepiece Corrector Lever



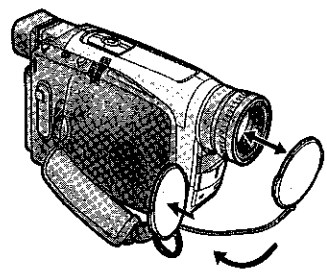
Title	Procedure	
Using the Viewfinder Before using the Viewfinder, adjust it to your eyesight so that the indications in the Viewfinder are clear and easy to read. **Never aim the Movie Camera with its Viewfinder or Lens directly at the sun; this could damage internal parts of the unit.** 	***1*** **Set the [CAMERA/OFF/ VCR] Switch to [CAMERA] or [VCR].** Turn the switch while pressing the button ❶. 	***2*** **If necessary, adjust the angle of the Viewfinder by tilting it upward.** The Viewfinder can be tilted upward by up to approximately 90°. 

Handling the Lens Cap

Before you start recording, remove the Lens Cap.

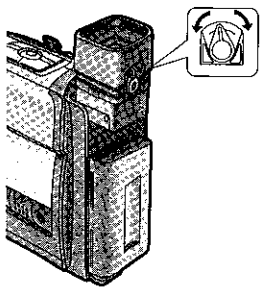
You can attach the removed Lens Cap onto the Grip Belt.

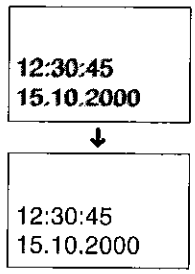
When not actually recording, always attach the Lens Cap to the Lens to protect it.



3

Adjust by turning the Eyepiece Corrector Lever.

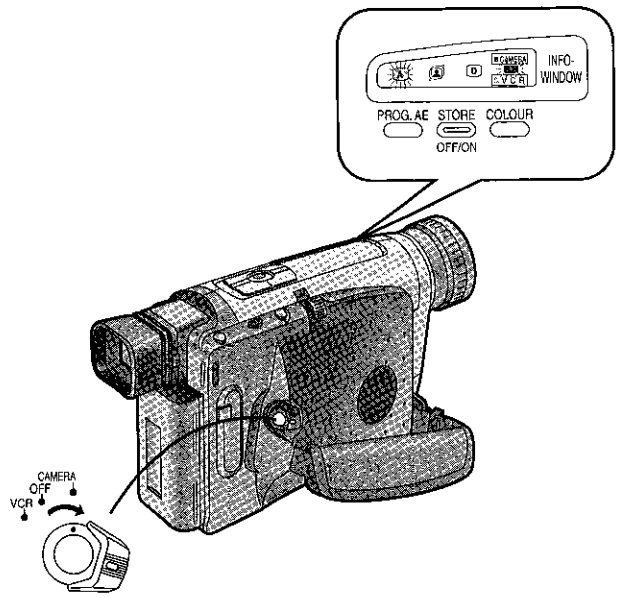


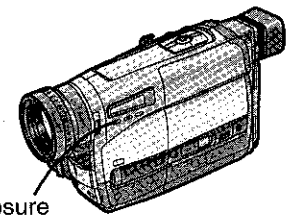
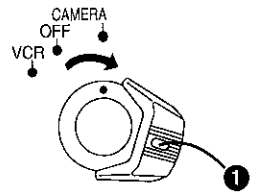
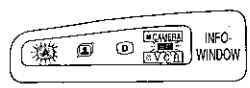
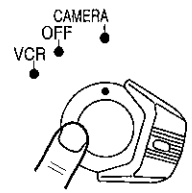


Remarks, etc.

- Do not hold the Movie Camera by the Viewfinder or apply any pressure on it.
- If sunlight or other strong light enters the Viewfinder, sparkling noise will occur on the Viewfinder screen. If you block off the light, this phenomenon disappears after a few minutes and does not affect the recorded picture.

- If a subject with strong contrast or a menu is displayed in the Viewfinder, a ghost image may remain temporarily. However, this is not a malfunction and does not affect the recorded picture.



Title	Procedure	
Recording (Filming) When the [AUTO] Indication appears, you can simply turn on the Movie Camera and press the Recording Start/Stop Button to start recording, and the focus and white balance are adjusted automatically. •If the [AUTO] Indication does not appear in the Viewfinder press the [PROG. AE] Button repeatedly until the [AUTO] indication appears and the [Ⓐ] Lamp lights. •Depending on the light source and recording situation, correct automatic focusing and white balance adjustment may not be possible. In such cases, adjust them manually. Focus: p. 26 White Balance: p. 54  Auto Exposure Selector Button	**1** **Set the [CAMERA/OFF/VCR] Switch to [CAMERA] while pressing the button ❶.** The [CAMERA] Lamp lights in red.   	**2** **Press the Recording Start/Stop Button.** Recording starts. The [RECORD] Indication appears briefly and then changes to [REC]. 

■ Index Signals (VISS)

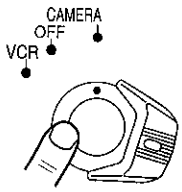
Many VHS VCRs feature the Index Search and Intro Scan Functions that make it easy to locate the beginning of scenes marked with index signals. This Movie Camera automatically records an index signal in the following cases:

- Start recording after connecting the AC Adaptor or attaching the Battery.
- Start recording after inserting a cassette.
- Start recording after changing from the VCR Mode to the Camera Mode.

The "INDEX" Indication flashes briefly while the Movie Camera records an index signal.

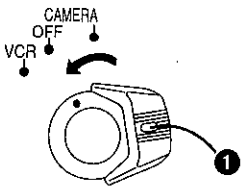
3

To pause recording: Press the Recording Start/Stop Button again.
The [PAUSE] Indication appears.



4

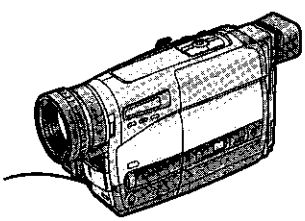
To finish recording: Set the [CAMERA/OFF/VCR] Switch to [OFF] while pressing the button ❶.

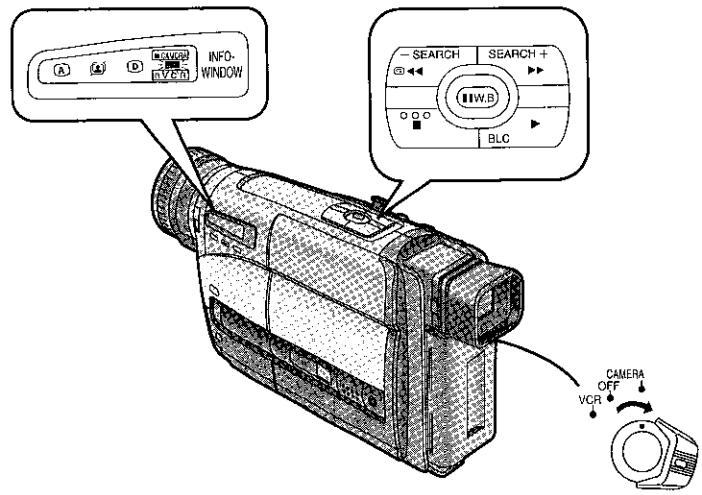


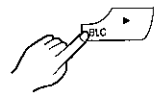
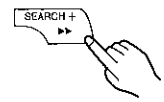
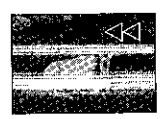
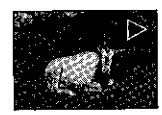
Remarks, etc.

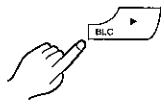
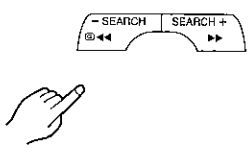
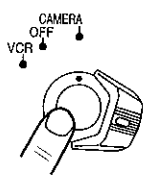
- **If you leave the Movie Camera in the Recording Pause Mode for more than 6 minutes, it automatically switches off to protect the tape and to conserve battery power. To resume recording from this condition, set the [CAMERA/OFF/VCR] Switch to [OFF] and then to [CAMERA] again.**
- During recording, the Programme AE Function is locked. Therefore, even if you accidentally press the [PROG. AE] Button during Recording, the Programme AE Mode does not change.
- When recording in a dimly lit location, we recommend that you use the IR/Video DC Light (optional), etc. to brighten up the scene.

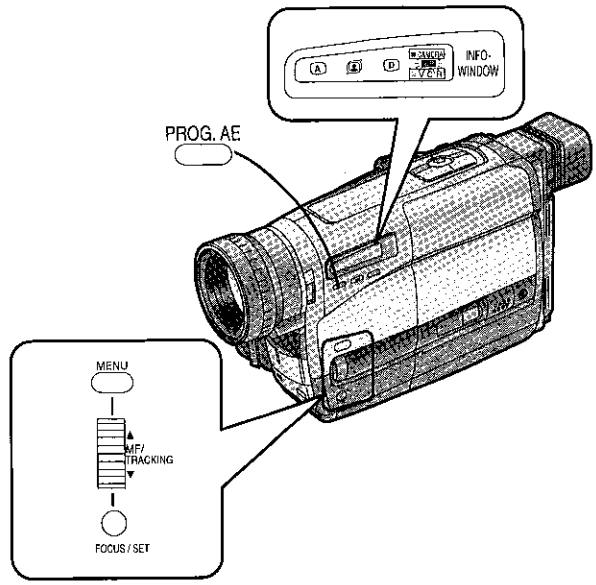
Recording Indicating (Tally) Lamp
The Recording Lamp lights during recording to let the people in front of the Movie Camera know that recording is being performed.
If you set [TALLY LAMP] on the [CAMERA SETUP] Sub-Menu to [OFF], the Recording Lamp will not light up during a recording.

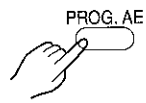
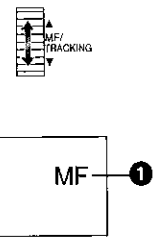




Title	Procedure
Recording Backlit Scenes **(Backlight Compensation)** To prevent the backlit subject from being recorded very dark. (Backlight means that the light falls on the subject from behind, i.e. the subject is between the light source and the Movie Camera.)	***1*** **Keep the Backlight Button [BLC] pressed.** The backlight is being compensated as long as you keep the Button pressed, and the subject is recorded more brightly. (The picture brightens up as a whole.) 
Checking If the Picture Is Recorded **(Recording Check)** By automatically playing back the final 2 seconds (approximate) of the last recorded scene, this function lets you check if a just finished scene has been recorded correctly. When you then start recording the next scene, it is automatically joined with a smooth transition free from picture distortion. For especially important scenes, use this function from time to time for confirmation.	***1*** **Press the Recording Check Button [⟲] briefly in the Recording Pause Mode.** The [CHK] Indication ❶ appears. After checking, the Movie Camera returns to the Recording Pause Mode and is ready for recording the next scene. ([CHK] means Check)
Viewing Recorded Scenes During Recording Pause **(Camera Search)** You can view recorded scenes when the Movie Camera is in the Recording Pause Mode. The Camera Search Function is convenient to search for a scene from which you want to start recording a new scene with smooth scene-to-scene transition.	***1*** **Keep the Reverse Search Button [–SEARCH] or the Forward Search Button [SEARCH+] pressed for more than 1 second.** Pressing the [–SEARCH] Button plays back the picture in reverse direction. Pressing the [SEARCH+] Button plays back the picture in forward direction.   

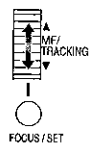
	Remarks, etc.
Returning to Normal Recording Release the Backlight Button [BLC]. 	•The sky may appear whitish. •When recording with the sun striking the subject at an angle, star-shaped light reflections may be recorded in the picture. •When recording a subject in front of a very bright background, the subject may still appear dark in the picture. •In some cases, the subject may look clear, but the background may be overexposed (almost completely white). However, this is normal and not a malfunction.
	•For Recording Check, the Movie Camera must be in the same mode (SP or LP) as used for recording, otherwise the playback picture is distorted.
2 **Starting to Record from the Desired Position: Release the pressed Search Button.** The Movie Camera is in the Recording Pause Mode. 	•If the Recording Speed Mode (SP/LP) of the previous and the new recording are different, the playback picture may be distorted.
3 **Press the Recording Start/Stop Button to start recording.** The Movie Camera starts recording a new scene with smooth scene-to-scene transition. 	



Title	Procedure	
Focusing on the Subject Manually **(Manual Focus)** This makes it possible to adjust the focus manually for subjects and recording situations for which automatic focusing is not precise.	**1** **Press the [PROG. AE] Button repeatedly until an indication other than [AUTO] Indication appears.**  	**2** **Turn the [MF] Dial until the subject is in focus.** The [MF] indication ❶ appears. 

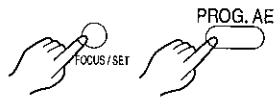
3

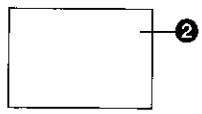
Alternatively, you can press the [FOCUS] Button to activate the Manual Focus Mode (the [MF] Indication appears). Then adjust the focus by turning the [MF] Dial, as in step *2*.



Cancelling the Manual Focusing Mode

Press the [FOCUS] Button once to make the [MF] Indication disappear ❷. Or, press the [PROG. AE] Button repeatedly until the [AUTO] Indication appears.





Remarks, etc.

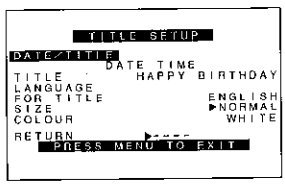
- It is not possible to adjust the focus when a menu is displayed.

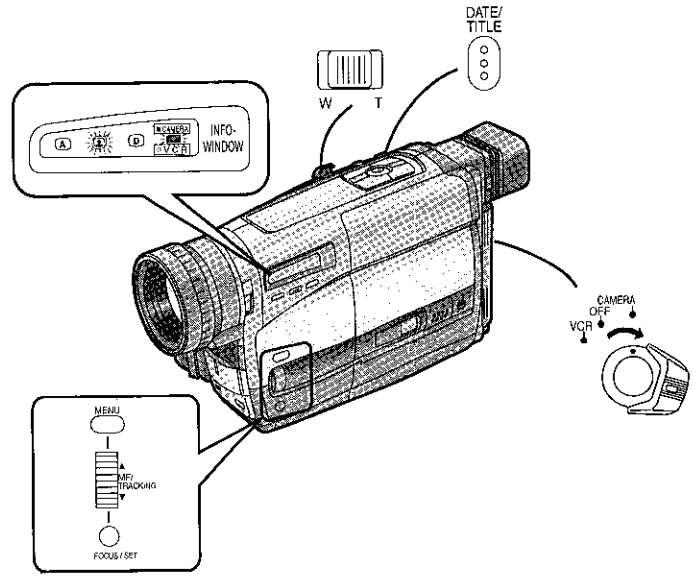
Hint for Manual Focus Adjustment

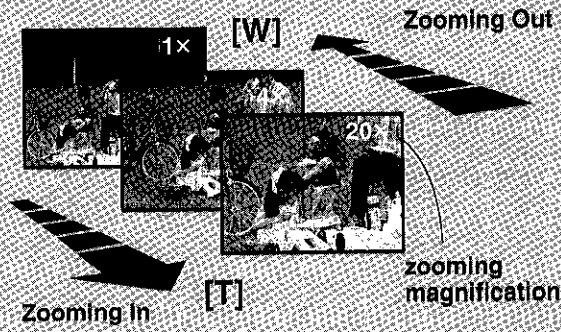
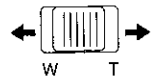
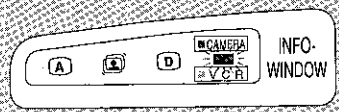
- If you adjust the focus in the wide-angle setting, the subject may go out of focus when you enlarge it. Therefore, enlarge the subject ❸ before you adjust the focus, so that the picture remains focused when you zoom out ❹.

❸

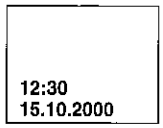
❹



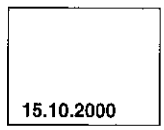


Title	Procedure
Enlarging Your Subject or Widening the Recording Angle **(Zooming In/Out)** Recording close-ups of your subjects and recording wide-angle shots adds special effects to your videos.  	**1** **To record a wider view (Zooming-out): Push the [W/T] Zoom Lever toward [W].** **To enlarge your subject (Zooming-in): Push the [W/T] Zoom Lever toward [T].** ●The Zoom Magnification Indication appears for a few seconds. 
Recording with the Time and/or Date Superimposed in the Picture Comfirm that [CAMERA] Lamp is lit.  	**1** **After displaying the [TITLE SETUP] Sub-Menu... (p.12): Turn the [▲▼] Dial to select [DATE/TITLE].** **2** **Press the [SET] Button to select the desired indication.**

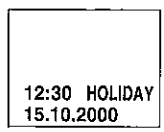
■ The Date/Time/Title Indication

❶


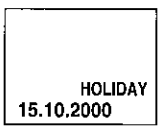
[DATE TIME]
Date and Time (h/m)

❷


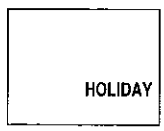
[DATE]
Date only

❸


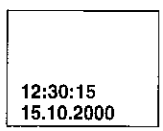
[DATE TIME TITLE]
Date, Time and Title

❹


[DATE TITLE]
Date and Title

❺


[TITLE]
Title only

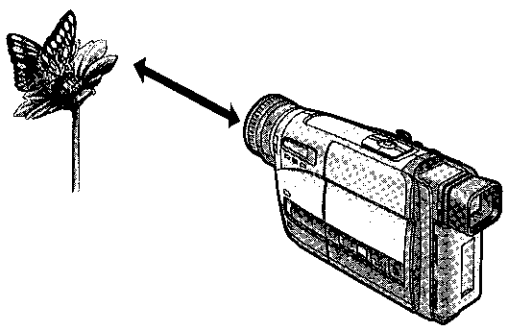
❻


[DATE TIME+SECONDS]
Date and Time (h/m/s)

- The indications change in the order ❶ to ❻.

Recording Extra Close-up Shots of Small Subjects (Macro Close-up Function)

When the zoom magnification is 1×, the Movie Camera can focus on subjects down to a distance of approximately 5 mm between lens and subject. This allows recording very small subjects such as insects.



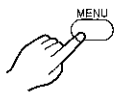
Remarks, etc.

- The further you push the [W/T] Zoom Lever toward [W] or [T], the faster the zooming speed becomes.
- When you have zoomed to the tele setting, precise focusing is only possible on subjects no closer than 1.8 metres.
- The zoom range extends from the wide-angle setting of the lens (1×) to the tele setting (20×).
- This Function also can be operated with Remote Controller. (p. 61) **(Only on model NV-RZ2B)**

3

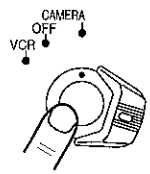
Press the [MENU] Button to exit the Menu Function.

The selected Date/Time/Title Indication appears.



4

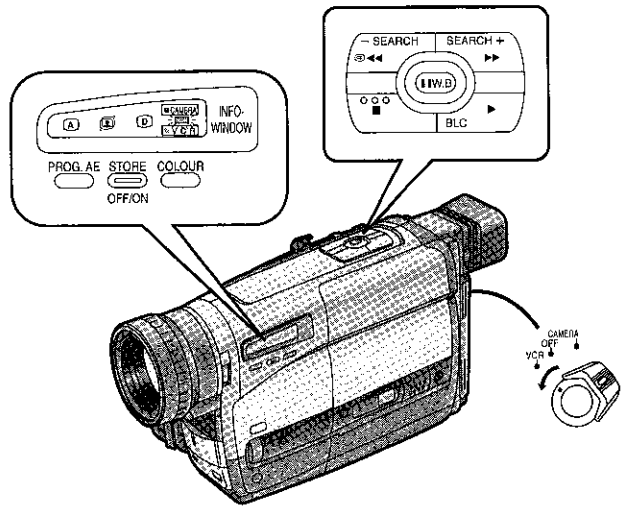
Press the Recording Start/Stop Button to start recording.

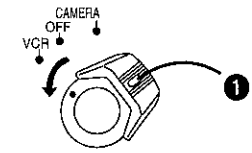
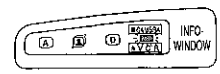
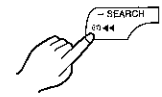
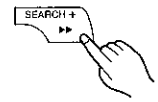


- If the button-type battery for the built-in clock is not inserted into the Movie Camera or is exhausted, only the title is displayed. (p. 11)
- When you turn the Movie Camera off and then on again, none of the above indications are displayed.
- The Date/Time/Title Indication remains displayed when you exit the [TITLE SETUP] Sub-Menu after having change the language of the title (p. 50), the type of Date/Time/Title Indication, the title itself (p. 50), the size of the title (p. 52) or the colour of the title (p. 52).

Deleting the Date/Time/Title Indication

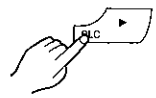
During recording or when the Movie Camera is in the Recording Pause Mode, press the [DATE/TITLE] Button to make the Date/Time/Title Indication disappear.

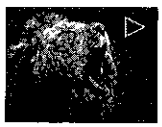


Title	Procedure
Viewing the Just Recorded Scenes on the Movie Camera **(Playback)** You can play back recorded scenes right after recording.	**1** **Set the [CAMERA/OFF/VCR] Switch to [VCR] while pressing the Button ❶.** The [VCR] Lamp lights.   **2** **Press the Rewind Button [◀◀] to rewind the tape.** ●Rewind the tape to the point where the recording started. ●If the tape reaches the beginning during rewinding, it automatically stops.  **Fast-Forwarding** Press the [▶▶] Button in the Stop Mode. ●When the tape reaches the end, it automatically rewinds to the beginning. 

3

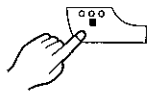
Press the Play Button [▶] to start playback.





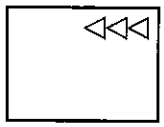
4

To stop playback: Press the Stop Button [■].



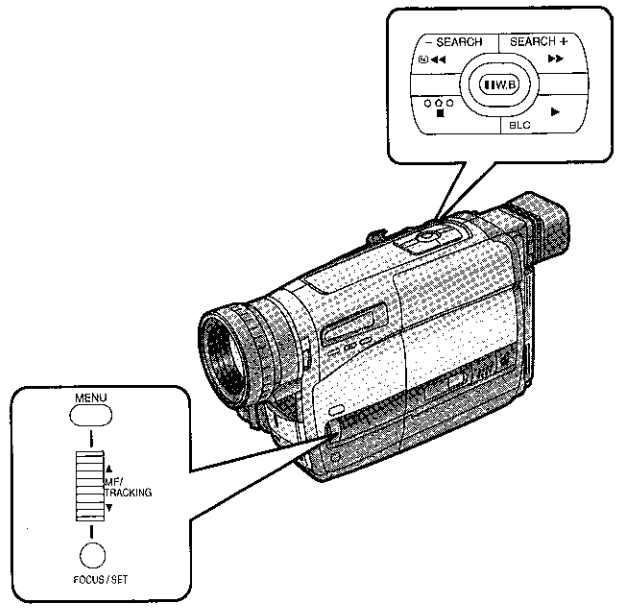
High-Speed Rewinding

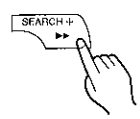
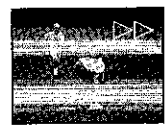
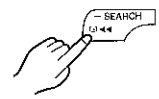
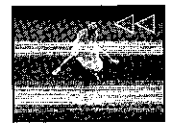
Press the [◀◀] Button for more than 1 second in the Stop Mode. The [◁◁◁] Indication appears.

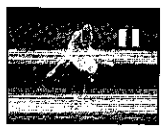
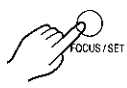


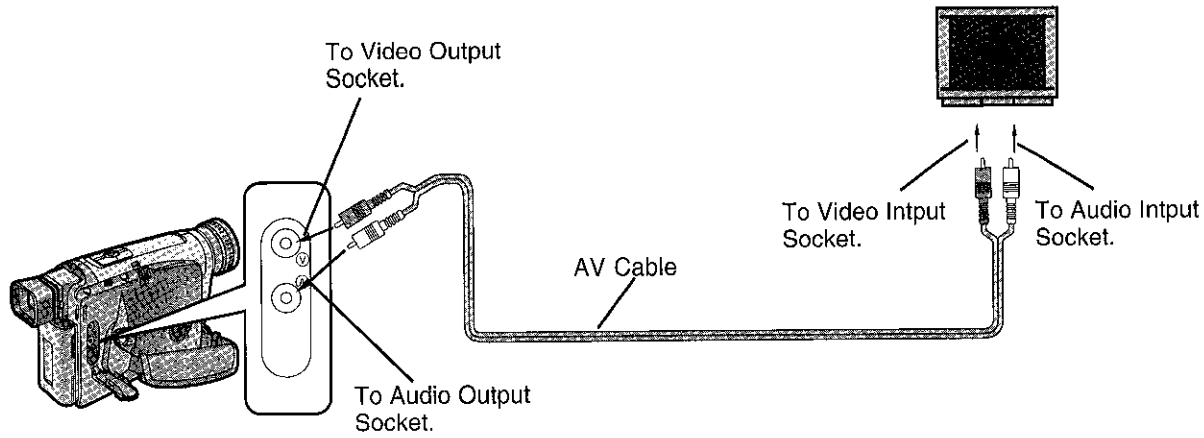
Remarks, etc.

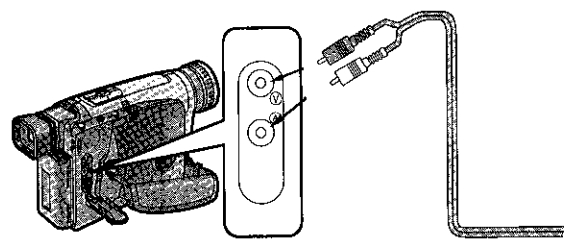
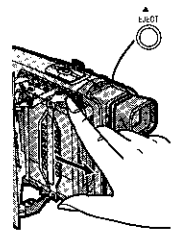
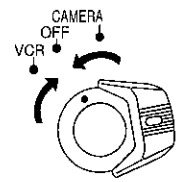
- During High-Speed Rewinding, the tape winding sound is louder.
- When rewinding the tape to the beginning, the Movie Camera automatically changes over from the High-Speed Rewinding Mode to the Rewinding Mode near the end of the tape, and it switches over to the Stop Mode at the end of the tape.
- If you press the [■] Button during High-Speed Rewinding, it takes several seconds before the tape is stopped, in order to protect the tape from damage.
- When using the Remote Controller, press the [◀◀] Button for more than 3 seconds.
  (Only on model NV-RZ2B)
- During High-Speed Rewinding, the Tape Counter shows [0:00.00].

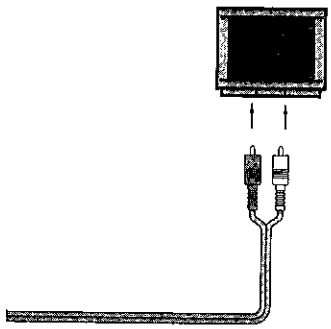
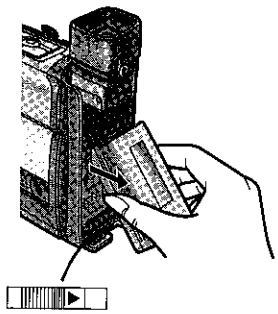
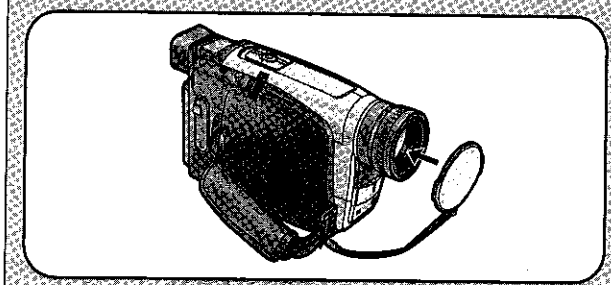


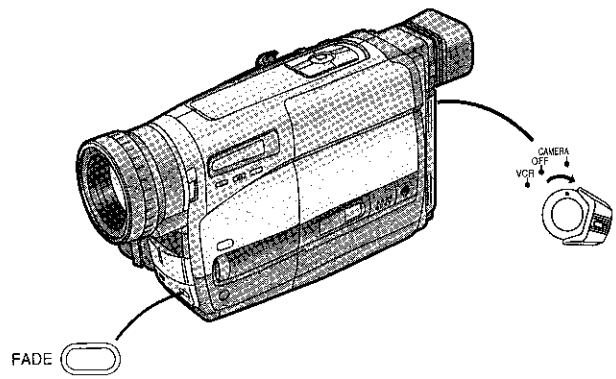
Title	Procedure	
Using the Cue, Review and Still Playback Functions During Normal Playback Perform the following operations with the Movie Camera in the VCR mode ([VCR] Lamp lights) and in the Normal Playback Mode.	**Cue Playback** Keep the Cue Button [▶▶] pressed during playback. ●To resume normal playback, release the [▶▶] Button.  	**Review Playback** Keep the Review Button [◀◀] pressed during playback. ●To resume normal playback, release the [◀◀] Button.  
Eliminating Picture Distortions **(Manual Tracking Adjustment)** This Movie Camera adjusts the tracking automatically. With certain cassettes, however, the tracking adjustment may not be precise. In this case, adjust the tracking manually. **White noise bars**	***1*** **Press the [FOCUS/SET] Button bliefly during playback.** The [TRACK.] Indication appears. 	***2*** **Turn the [TRACKING] Dial to adjust the tracking.**

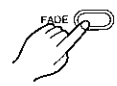
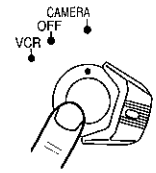
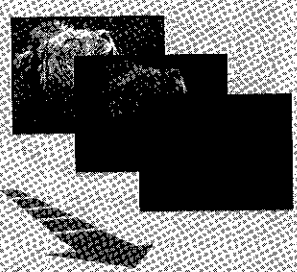
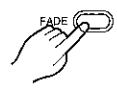
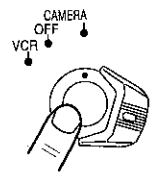
		Remarks, etc.
Search Lock Function For longer Cue or Review Playback, press the Cue Button [▶▶] or the Review Button [◀◀] only briefly. As this locks the search function, you do not need to keep the button pressed for a long time. ●To resume normal playback, press the Play Button [▶].	**Still Playback** Press the Still Button [❚❚] pressed during playback. To return to Normal Playback, press the Still Button [❚❚] again. 	●If you leave the Movie Camera in the Still Playback Mode for about 6 minutes, it automatically switches over to the Stop Mode. And, if the Movie Camera is being powered by the Battery, it switches off completely after a further 6 minutes. ●In the Cue, Review and Still Playback Modes, horizontal noise bars appear in the picture, or the picture may become black and white or distorted. ●The horizontal noise bars have a different pattern in the SP mode and LP mode.
Returning to the Auto Tracking Mode Press [FOCUS/SET] Button for more than 2 seconds during playback.  		●The Tracking Adjustment Function is automatically cancelled when the [TRACKING] Dial is not turned for 5 seconds. ●It may not be possible to remove the noise bars completely. ●It is not possible to adjust the tracking when a menu is displayed. ●If you eject the cassette after adjusting the tracking, the adjusted setting is cancelled.

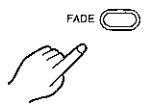
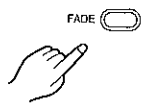


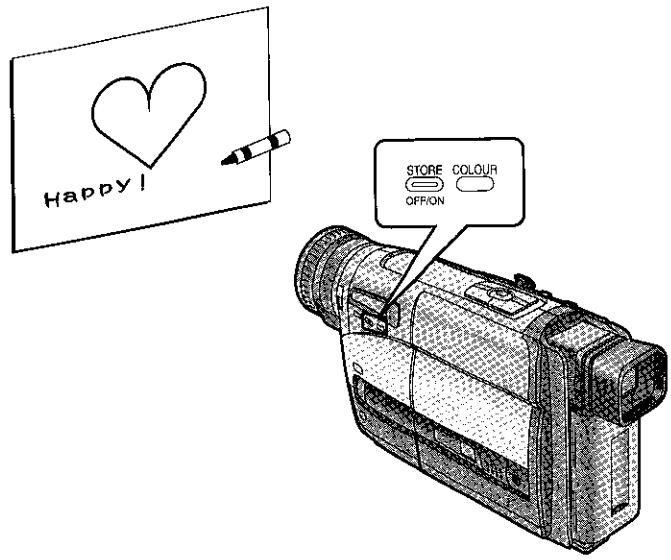
Title	Procedure	
Playing Back on a TV By connecting the Movie Camera to a TV, you can watch playback of the recorded scenes on the TV screen.	**1** **Connect the Audio Output Socket [Ⓐ] and the Video Output Socket [Ⓥ] on the Movie Camera with the Video and Audio Input Sockets on the TV.** Use the AV Cable and to connect to the TV. 	
After Use	**1** **Take out the cassette. (p. 18)** 	**2** **Set the [CAMERA/OFF/ VCR] Switch to [OFF].** 

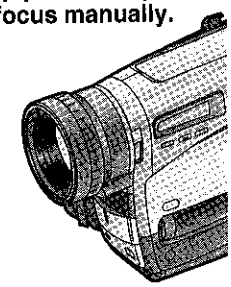
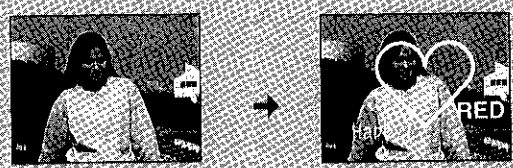
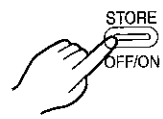
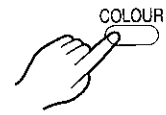
	Remarks, etc.
On the TV, select the AV input channel which corresponds to the AV input sockets that you have connected the Movie Camera to. 	•Before connecting, turn off both the Movie Camera and the TV. •If your TV is not equipped with AV Input Sockets, the 21-pin Adaptor (purchase separately) is necessary. Consult your dealer.
3 **Remove the Battery. (p. 9)** 	**Attaching the Lens Cap** After use, attach the supplied Lens Cap to the Lens to protect it. 

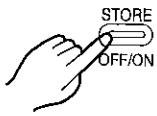
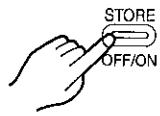


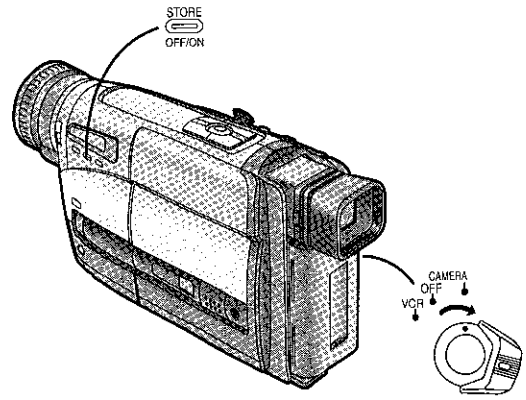
Title	Procedure	
Starting to Record with Gradually Appearing Picture and Sound **(Fading In)** Fading-in lets you make the picture and sound appear gradually from a black screen at the beginning of a scene. 	**1** **With the Movie Camera in the Recording Pause Mode, keep the Fade Button [FADE] pressed.** The picture gradually disappears. 	**2** **When the picture has completely disappeared, press the Recording Start/Stop Button to start recording.** 
Ending the Recording of a Scene with Gradually Disappearing Picture and Sound **(Fading Out)** Fading-out lets you make the picture and sound disappear gradually into a black screen at the end of a scene. 	**1** **During recording, keep the Fade Button [FADE] pressed.** The picture gradually disappears. 	**2** **After the picture has completely disappeared, press the Recording Start/Stop Button to stop recording.** The Movie Camera is in the Recording Pause Mode. 

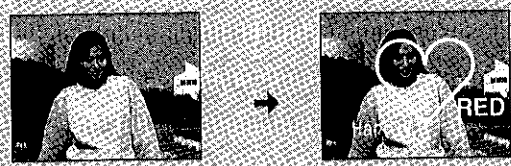
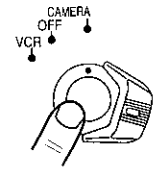
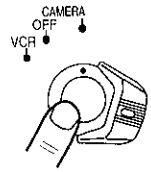
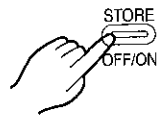
	Remarks, etc.
3 **Approximately 3 seconds after the recording has started, release the Fade Button [FADE].** The picture gradually appears again. 	
3 **Release the Fade Button [FADE].** 	

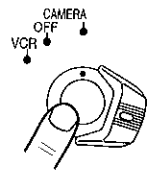
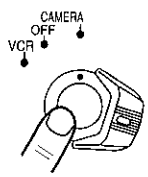


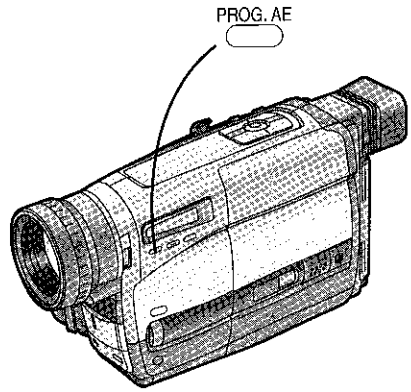
Title	Procedure	
Creating Your Own Titles and Inserting Them During Recording **(Digital Superimposer Function)** This function lets you store the image of a handwritten title, signboard, printed title, (or some similar object with strong contrast) in the Movie Camera's digital image memory. Then you can change the dark parts of this image to a desired colour and superimpose it during recording. **1) Storing Your Own Title in the Digital Image Memory**	***1*** **Prepare a title that has strong contrast (e.g. write with a thick black marker on white paper).**	***2*** **With the Movie Camera in the Recording Pause Mode, aim it at the title. If the Full Auto Mode does not provide a sharp picture, adjust the focus manually.** 
2) Selecting the Desired Colour of Your Own 	***1*** **Press the [OFF/ON] Button to make the title appear.** 	***2*** **Press the [COLOUR] Button repeatedly until the desired colour is displayed.** 

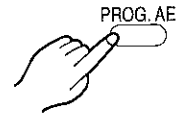
		Remarks, etc.
3 **Press the [STORE] Button for more than 2 second.** **The title is now stored in the digital image memory and it remains displayed.**  	**4** **Press the [OFF/ON] Button briefly to make the title disappear.** **Pressing the [OFF/ON] Button briefly repeatedly makes the title appear and disappear.**  	●The title stored in the digital image memory may be automatically cancelled when you store a new title, remove the Battery, disconnect the AC Adaptor, or when the Battery becomes discharged. ●By displaying the title which you stored in the digital image memory and using the Digital Fade 1, Digital Fade 2 or Digital Fade 3 Function, you can fade the title together with the picture. ●It is not possible to apply the Negative Effect when storing a title in the digital image memory. ●After turning the Movie Camera off and then on again, the title that had been displayed in the picture is no longer displayed. To make it appear again, press the [OFF/ON] Button. ●When you want to capture a small title, use the Macro Close-up Function. (p. 29) ●Aim the Movie Camera so that the title is in the centre of the screen to ensure that the title does not get clipped at the edges.
		●The colours of the title change in the following order: White [WHT] ➜ Yellow [YEL] ➜ Magenta [MAG] ➜ Red [RED] ➜ Cyan [CYN] ➜ Green [GRN] ➜ Blue [BLU] ➜ Black [BLK] ➜ White [WHT] ➜ [ ]: Colour Indications displayed in the Viewfinder



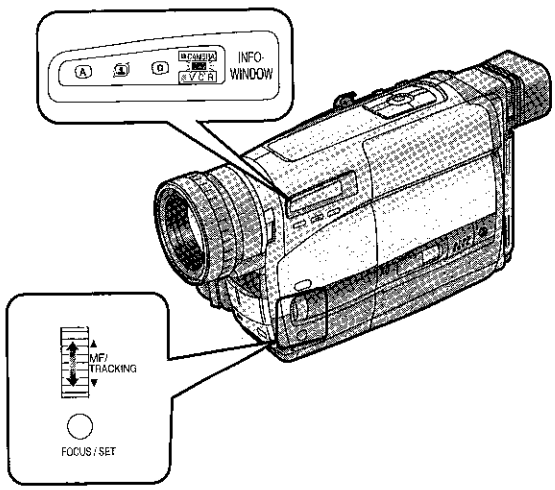
Title	Procedure	
Creating Your Own Titles and Inserting Them During Recording (Digital Superimposer Function) (Continued) 3) Recording with the Title from the Memory Superimposed over the Moving Picture ■ Inserting Your Own Title at the Beginning of a Recording 	**1** Press the [OFF/ON] Button to make the title appear. 	**2** Press the Recording Start/Stop Button to start recording. 
■ Inserting Your Own Title During Recording	**1** Press the Recording Start/Stop Button to start recording. 	**2** At the point where you want to insert the title, press the [OFF/ON] Button to make the title appear. 

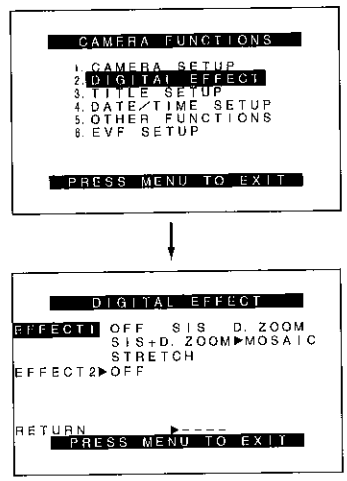
	Remarks, etc.
3 **Press the Recording Start/Stop Button to stop recording.** 	•Confirm that the colour indicated is suitable for the intended scene. If necessary, change the colour. (p. 38) •To make the title disappear while the recording of the scene continues, press the [OFF/ON] Button briefly.
3 **Press the Recording Start/Stop Button to stop recording.** 	•To make the title disappear while the recording of the scene continues, press the [OFF/ON] Button briefly.

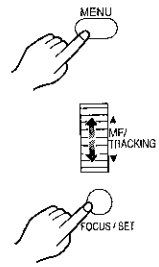


Title	Procedure
Recording in Special Situations **(Programme AE)** This function lets you select Automatic Exposure settings optimized for special recording situations. 	***1*** **Press the [PROG. AE] Button to the desired mode ([ ], [ ], [ ], [ ] or [ ]).**  [ ] Sports Mode To record scenes with fast-moving subjects such as sports scenes. [ ] Portrait Mode To make subjects stand out sharply from the background. [ ] Low Light Mode To record dark scenes more brightly. [ ] Spotlight Mode To record subjects under bright spotlights such as at a party, in the theatre, etc. [ ] Surf & Snow Mode To record subjects in brightly lit surroundings such as on a ski slope, beach, etc.

	Remarks, etc.
Cancelling the Programme AE Function Press the [PROG. AE] Button to set to [AUTO].	●During recording, it is not possible to change the recording mode ([AUTO], [MNL], [ ], [ ], [ ], [ ], [ ]), even if you press the [PROG. AE] Button. ●It is not possible to use any of the Programme AE Modes when the 0 Lux Night View Mode is activated. **Sports Mode** ●When playing back on a VCR scenes that you have recorded in the Sports Mode, you can enjoy slow motion and still playback of very sharp images with fine details. ●During normal playback, movements in the picture may not be smooth. ●Avoid recording under fluorescent, mercury-vapour or natrium lamps in this mode, as the colour and the brightness of the playback picture may fluctuate. ●When recording subjects lit by strong lights or with much light reflection, the playback picture may contain vertical streaks of light. ●When the scene is not sufficiently lit, the [ ] indication flashes. ●When using this mode for recording indoors, the playback picture may flicker. **Portrait Mode** ●When using this mode for recording indoors, the playback picture may flicker. **Low Light Mode** ●It may not be possible to sufficiently brighten up extremely dark scenes. ●The use of this mode for recording may cause noise in the playback picture. **Spotlight Mode** ●When using this mode, the recorded picture may be extremely dark. ●If a subject is extremely bright, the recorded picture may be whitish. **Surf & Snow Mode** ●If a subject is extremely bright, the recorded picture may be whitish.





Title	Procedure
Recording with Special Effects (Digital Effects) In addition to the Super Image Stabilizer and Digital Zoom, this Movie Camera offers you various digital effect modes to make it easy to enhance your scenes in many creative ways.	**1** **Select the [DIGITAL EFFECT] on the [CAMERA FUNCTIONS] Main-Menu.**  **2** **Turn the [▲▼] Dial to select [EFFECT1] or [EFFECT2].**

Digital Effects 1 [EFFECT1]

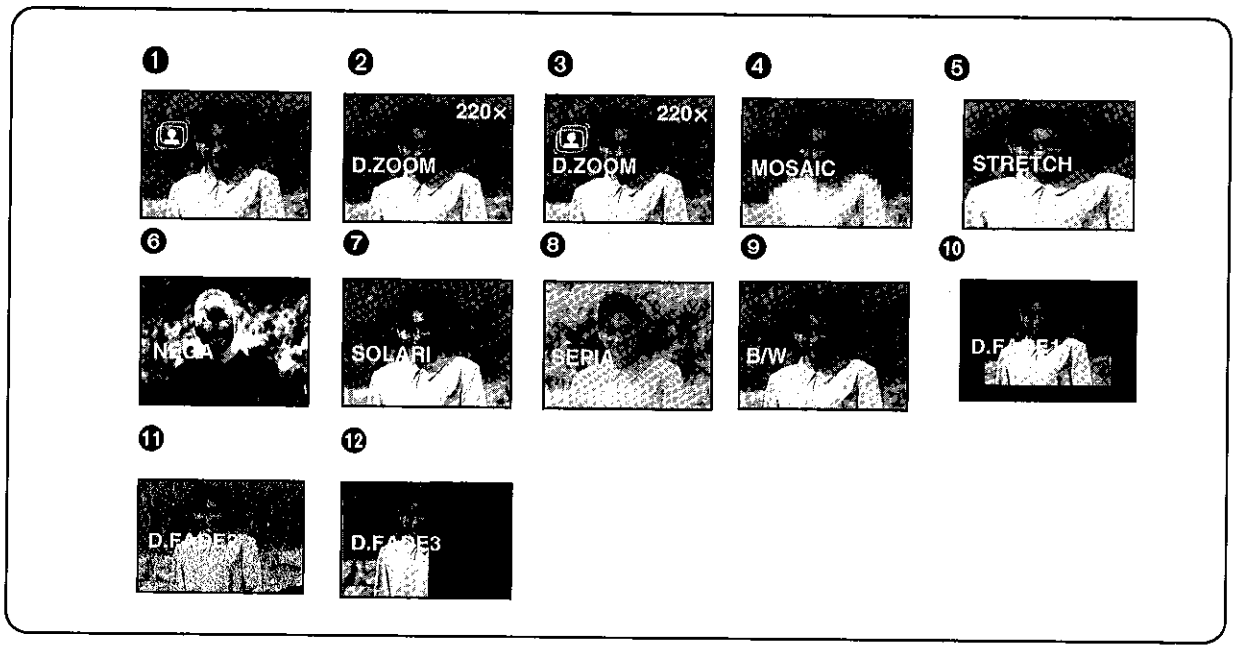
❶ **Super Image Stabilizer mode [SIS] (p. 46)**
This prevents shaky pictures when recording in the tele range of from a moving vehicle.

❷ **Digital Zoom Mode [D.ZOOM] (p. 46)**
It enlarges the subject beyond the optical zooming range.

❸ **Super Image Stabilizer and Digital Zoom Mode [SIS+ZOOM] (p. 46)**
This combination mode allows recording in the extreme tele range and prevents shaky picture.

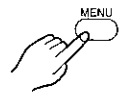
❹ **Mosaic Mode [MOSAIC]**
The picture becomes mosaic-like.

❺ **Stretch Mode [STRETCH]**
The picture is stretched horizontally while its height remains unchanged.



3
Press the [SET] Button to select the desired digital effect.

4
Press the [MENU] Button to exit the Menu.



Digital Effects 2 [EFFECT2]

❻ **Negative Mode [NEGA]**
The recorded pictures have reversed colours similar to photographic negatives.

❼ **Solarisation Mode [SOLARI]**
The picture is recorded with an effect similar to a painting.

❽ **Sepia Mode [SEPIA]**
Scenes are recorded with a brown tint similar to the colour of old photographs.

❾ **Black & White Mode [B/W]**
The picture is recorded in black and white.

❿ **Digital Fade 1 Mode [D.FADE1] (p. 48)**
The picture fades in starting at the centre and extending toward the edges, and it fades out in reverse direction.

⓫ **Digital Fade 2 Mode [D.FADE2] (p. 48)**
The picture fades in from a white screen and fades out to white in small dots similar to snow melting or falling.

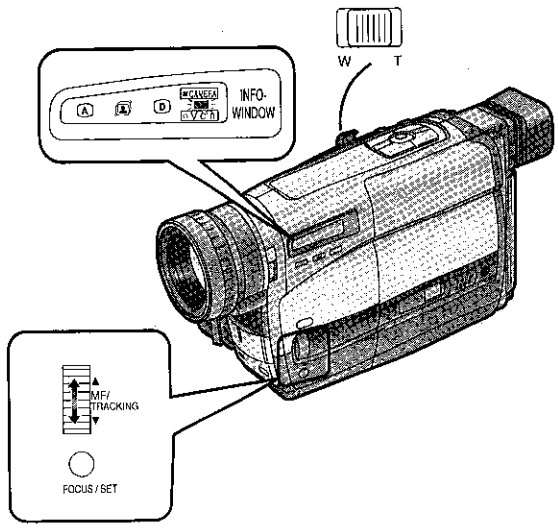
⓬ **Digital Fade 3 Mode [D.FADE3] (p. 48)**
The picture fades in with a wipe effect from a black screen and fades out to black.

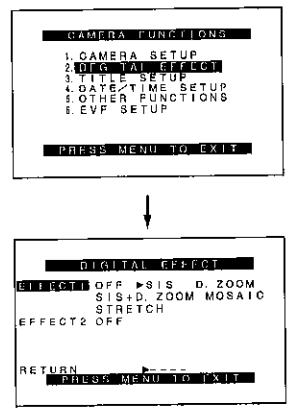
Remarks, etc.

- When you select the Super Image Stabilizer Mode, the [🤳] Lamp lights. When you select any other digital effect, the [D] Lamp lights.
- If you set the [CAMERA/OFF/VCR] Switch to [OFF] and then set it to [CAMERA] again, the indication of the selected digital effect flashes for a few seconds to inform you of the selected setting.
- If you have set [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [SEPIA] or [B/W], changing the selected white balance mode is not possible.

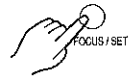
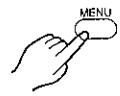
Cancelling the Digital Effect

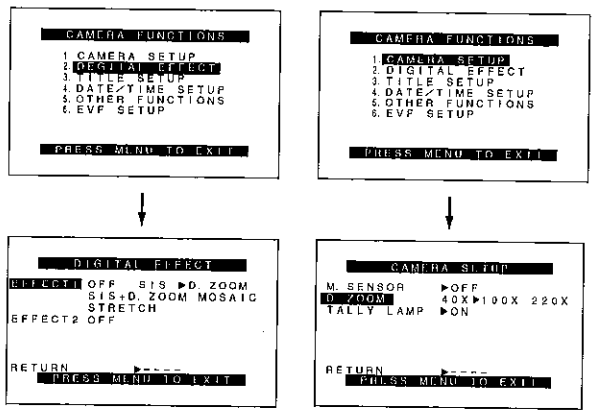
Set [EFFECT1] or [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [OFF].





SIS Mode

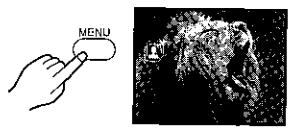
Title	Procedure	
Recording with Minimised Camera Shake **(Super Image Stabilizer)** In recording situations where shaking of the Movie Camera is likely to happen, for example when you have zoomed in on a distant subject or when you record while walking, you can use this function to stabilize the image.	**1** **After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44) Turn the [▲▼] Dial to select [EFFECT1].**	**2** **Press the [SET] Button to select [SIS] or [SIS+D.ZOOM].** The [ ] and/or [ ] Lamp lights.
Using the Digital Zoom Function This function is convenient, when you record a very distant subject and want to enlarge it even further than is possible with the normal (optical) zoom function.	**1** **After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44) Turn the [▲▼] Dial to select [EFFECT1].**	**2** **Press the [SET] Button to select [D.ZOOM] or [SIS+D.ZOOM].** The [ ] and/or [ ] Lamp lights. 
	5 **Press the [SET] Button to select the desired digital zoom range up to 40×, 100× or 220×.**	**6** **Press the [MENU] Button to exit the Menu.** The [D.ZOOM] and/or [ ] Indication appears. 



D.Zoom Mode

3

Press the [MENU] Button to exit the Menu.
The [ ] and/or [D.ZOOM] Indication appears.

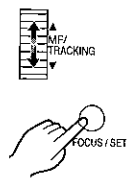


Cancelling the Super Image Stabilizer Function

Set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [OFF].

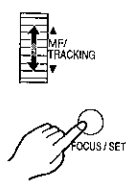
3

Turn the [▲▼] Dial to select [RETURN] and then press the [SET] Button to select [YES].



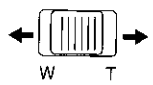
4

Select [D.ZOOM] on the [CAMERA SETUP] Sub-Menu. (p. 12)



7

Push toward [T] or [W] to zoom in or out as desired.



Cancelling the Digital Zoom Function

Set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [OFF].

Remarks, etc.

Notes for Use of the Super Image stabilizer Function

- When you use the Super Image Stabilizer Function, the shutter speed is automatically adjusted between 1/50 s and 1/125 s according to the brightness of the scene.
- When you cancel the Super Image Stabilizer Function also resets the shutter speed to 1/50 s. However, after selecting the Sports Mode or the Portrait Mode, cancellig the Super Image Stabilizer Function does not reset the shutter speed to 1/50 s.

■ In the Following Recording Conditions, the Picture Stabilizing Effect May Not Be sufficient:

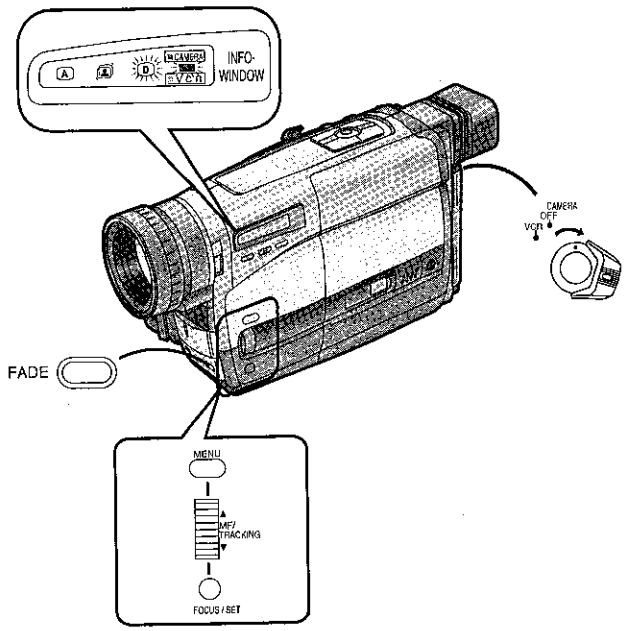
- Subjects with horizontal or vertical stripes
- Flat subjects
- Dark subjects (In this case, the [ ] Indication flashes. Increase the amount of light.)
- Subject under many fluorescent lamps.
- Fast-moving subjects
- Subjects with a flat background

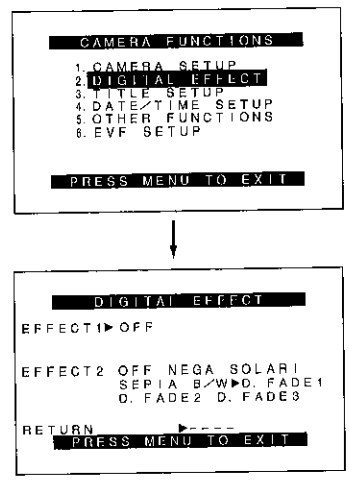
■ When Using the Super Image Stabilizer Function, the Picture Changes as Follows:

- The picture quality deteriorates slightly.
- Under fluorescent lamps, the picture brightness may fluctuate and the colours may be unnatural.

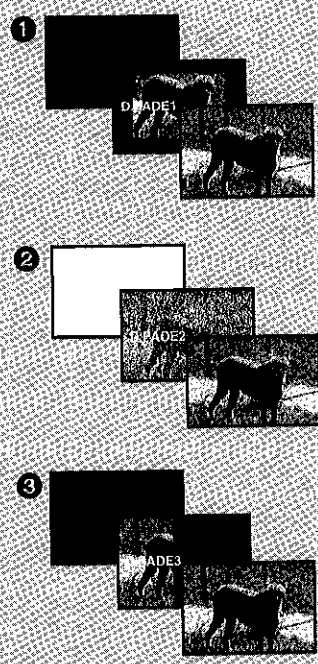
Notes for Use of the Digital Zoom Function

- When using the Digital Zoom Function, the picture quality is somewhat reduced.
- The zooming speed is variable. The farther you push the [W/T] Zoom Lever toward [W] or [T], the faster the zooming speed becomes.
- With the Digital Zoom Function activated, you can optically zoom between 1× (wide-angle) and 20× and digitally between 21× and 220×. The changeover between optical and digital zooming is automatic.
- Within the digital zoom range (21×-220×), it is not possible to adjust the white balance manually or to cancel the manually adjusted white balance setting.
- After selecting the Digital Zoom Mode on the Movie Camera, digital zooming can also be operated with the Remote Controller.
  (Only on model NV-RZ2B)



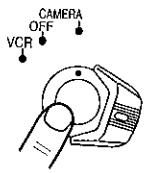


Title	Procedure	
Using the Digital Fade Functions	***1***	***2***
There are 3 Digital Fade Modes available. ❶ **Digital Fade 1 [D.FADE1]** ❷ **Digital Fade 2 [D.FADE2]** ❸ **Digital Fade 3 [D.FADE3]**	■ **To Fade in:** **After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44)** **Set [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [D.FADE1], [D.FADE2] or [D.FADE3] and exit the Menu.** ●The [ⒹⒹ] Lamp lights.	**With the Movie Camera in the Recording Pause Mode, keep the Fade Button [FADE] pressed.** The picture gradually disappears.
1	***2***	
■ **To Fade out:** **After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44)** **Set [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [D.FADE1], [D.FADE2] or [D.FADE3] and exit the Menu.** ●The [ⒹⒹ] Lamp lights.	**During recording, keep the Fade Button [FADE] pressed.** The picture gradually disappears.	



3

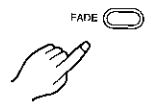
When the picture has completely disappeared, press the Recording Start/Stop Button to start recording.



4

Approximately 3-4 seconds after the recording has started, release the Fade Button [FADE].

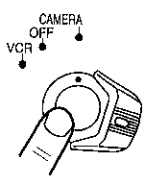
The picture gradually appears again.



3

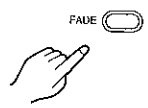
After the picture has completely disappeared, press the Recording Start/Stop Button to stop recording.

The Movie Camera is in the Recording Pause Mode.



4

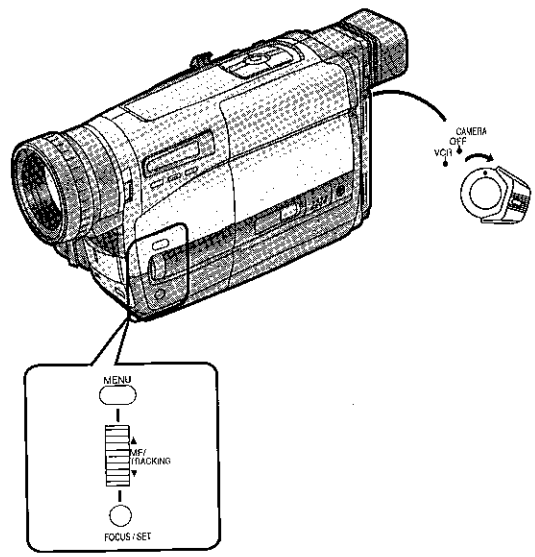
Release the Fade Button [FADE].

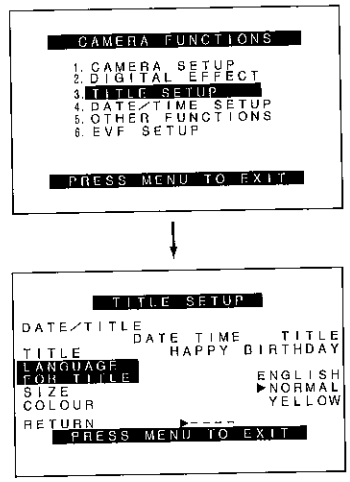


Remarks, etc.

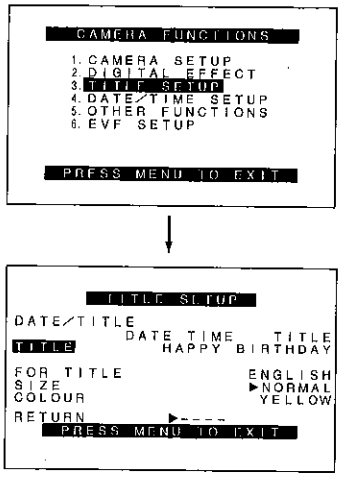
Cancelling the Selected Digital Fade Function

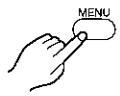
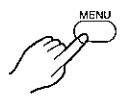
Set [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [OFF] and exit the Menu.

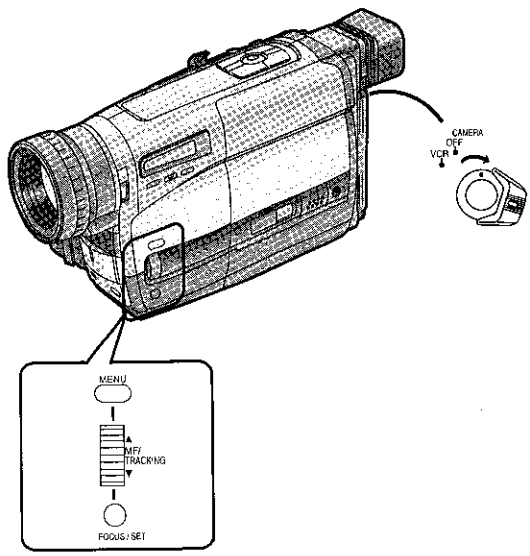


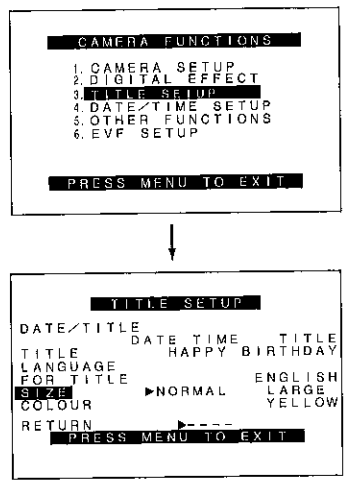


Title	Procedure	
Recording with Pre-programmed Titles Inserted in the Picture You can insert one of 10 pre-programmed titles when recording of special occasions such as weddings and birthday parties. These titles are available in 6 languages. **1) Selecting the Desired Language**	***1*** **After displaying the [TITLE SETUP] Sub-Menu... (p.12)** **Turn the [▲▼] Dial to select [LANGUAGE FOR TITLE].** 	***2*** **Press [SET] Button repeatedly to select the desired language.**
2) Selecting the Desired Pre-programmed Title HOLIDAY	***1*** **After displaying the [TITLE SETUP] Sub-Menu... (p.12)** **Turn the [▲▼] Dial to select [TITLE].** 	***2*** **Press the [SET] Button repeatedly to select the desired title.**

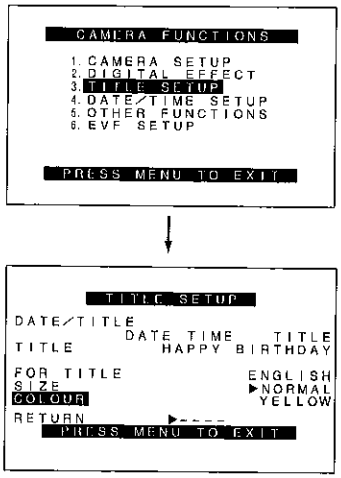


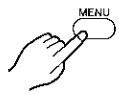
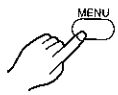
	Remarks, etc.
3 **Press [MENU] Button to exit the Menu.** 	●Repeatedly pressing the [SET] Button changes the language in the following order. [ENGLISH] ➜ [GERMAN] ➜ [FRENCH] ➜ [ITALIAN] ➜ [SPANISH] ➜ [RUSSIAN] ➜ [ENGLISH] ➜ ●The Date/Time/Title Indication remains displayed when you exit the [TITLE SETUP] Sub-Menu after having change the language of the title, the type of Date/Time/Title Indication (p. 29), the title itself, the size of the title (p. 52) or the colour of the title (p. 52).
3 **Press the [MENU] Button to exit the Menu.** 	●Repeatedly pressing of the [SET] Button changes the title in the following order. (In the other available languages, they are arranged in the same order.) [HOLIDAY] ➜ [HAPPY BIRTHDAY] ➜ [WEDDING] ➜ [FAMILY] ➜ [PARTY] ➜ [THE END] ➜ [CONGRATULATIONS] ➜ [MERRY CHRISTMAS] ➜ [HAPPY MEMORIES] ➜ [HAPPY NEW YEAR] ➜ [HOLIDAY] ➜

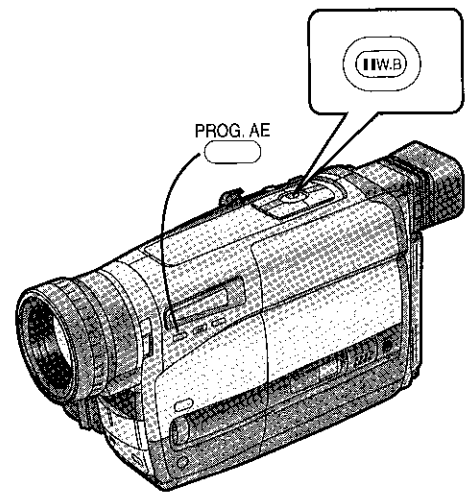


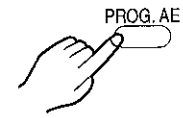
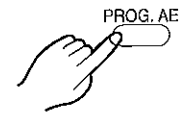
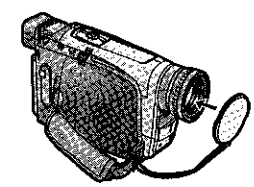


Title	Procedure	
Recording with Pre-programmed Titles Inserted in the Picture (cont.) **3) Selecting the Size of the Pre-programmed Title Indication** HOLIDAY ➡ HOLIDAY	**1** **After displaying the [TITLE SETUP] Sub-Menu... (p.12) Turn the [▲▼] Dial to select [SIZE].** MF/ TRACKING	**2** **Press the [SET] Button repeatedly to select [NORMAL] or [LARGE].** FOCUS / SET
4) Selecting the Desired Colour of the Pre-programmed Title You can select the colour of the title from among 8 colours.	**1** **After displaying the [TITLE SETUP] Sub-Menu... (p.12) Turn the [▲▼] Dial to select [COLOUR].** MF/ TRACKING	**2** **Press the [SET] Button repeatedly to select the desired colour.** FOCUS / SET



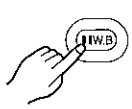
	Remarks, etc.
3 **Press the [MENU] Button to exit the Menu.** 	●When a large-size title is displayed, the following indications do not appear even if the corresponding modes are activated: Super Image Stabilizer Mode Indication, Digital Zoom Mode Indication, Digital Effect Mode Indications, Manual White Balance Mode Indication, Manual Focus Mode Indication, Colour Indication for the Digital Image, and 0 Lux Night View Mode Indication. ●If you set [SIZE] on the [TITLE SETUP] Sub-Menu to [LARGE], the large [RECORD] and [PAUSE] indications, which usually appear briefly when you start or stop recording, do not appear.
3 **Press the [MENU] Button to exit the Menu.** 	●The colours of the title change in the following order: [WHITE] ➜ [YELLOW] ➜ [MAGENTA] ➜ [RED] ➜ [CYAN] ➜ [GREEN] ➜ [BLUE] ➜ [BLACK] ➜ [WHITE] ➜



Title	Procedure	
Recording with Automatic White Balance Adjustment After pressing the [PROG. AE] Button so that the [AUTO] Indication appears, it is possible to record pictures with natural colours under almost any recording condition.	***1*** **Press the [PROG. AE] Button repeatedly the [AUTO] Indication appears.** 	
Recording with Manual White Balance Adjustment With this Movie Camera, you can also adjust the white balance manually. Use this mode for special subjects and recording conditions, such as listed (p. 70), for which the Full Auto Mode is not suitable, and for light sources outside the Auto White Balance Adjustment range. Use it also when you want to manually adjust the white balance for each new scene as professionals do.	***1*** **Press the [PROG. AE] Button repeatedly until an indication other than [AUTO] Indication appears.** 	***2*** **Attach the White Lens Cap and zoom in until the entire screen becomes white.** 

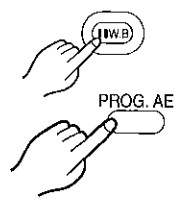
3

Keep the [W.B] Button pressed until the [▣] Indication stops flashing and remains lit.



Returning to the Auto White Balance Adjustment Mode

Press the [W.B] Button repeatedly until the [▣] Indication disappears. Or, press the [PROG. AE] Button repeatedly until the [AUTO] indication appears.



Remarks, etc.

Notes about the Recording with Automatic White Balance Adjustment

- For detailed explanations about the white balance adjustment, see p. 70.
- Be careful not to cover the White Balance Sensor for the Automatic White Balance Adjustment with your hand, etc. during recording.
- If the [▣] Indication is displayed with the [MNL], [ ], [ ], [ ], [ ] or [ ] Indication, press the [W.B] Button to make the [▣] Indication disappear.

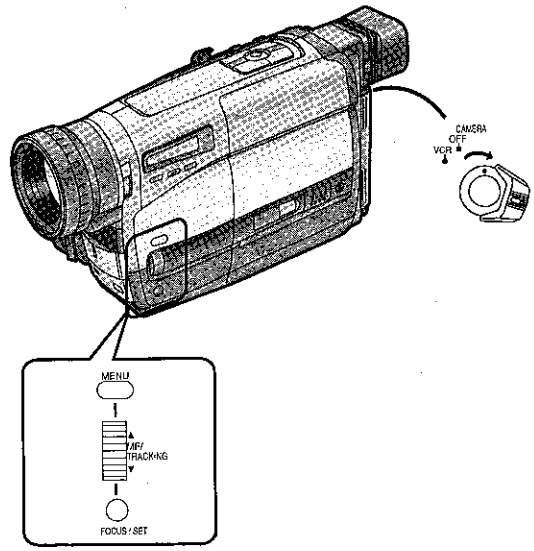
Notes about the Adjusting the White Balance Manually

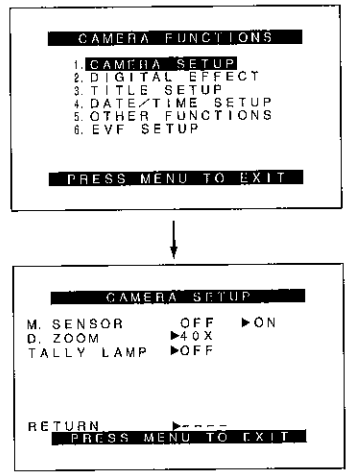
- During recording, it is not possible to change the recording mode ([AUTO], [MNL], [ ], [ ], [ ], [ ] or [ ]), even if you press the [PROG. AE] Button. (p. 42)
- If you use an additional light source with low colour temperature (e.g. halogen lamp) while recording a subject with high colour temperature (e.g. blue sky or TV screen), unnatural colours will result.
- If there are several light sources or if the illumination is weak:
  In operation step 2, instead of attaching the Lens Cap, point the Movie Camera at a pure white subject.
- If you want to record under weak illumination, precise Manual White Balance Adjustment may not be possible. In this case, record in the [AUTO] Mode.
- When the Sepia Mode, Black & White Mode, or 0 Lux Night View Mode is used, it is not possible to manually adjust the white balance. Also, if the white balance was manually adjusted, it cannot be cancelled, even if you press the [W.B] Button.

In the Following Cases, the [▣] Indication Flashes:

- Under weak illumination, precise manual white balance adjustment may not be possible. In this case, press the [PROG.AE] Button repeatedly until the [AUTO] Indication appears.
- The [▣] Indication flashes while the white balance is being adjusted. When the white balance adjustment is finished, the [▣] Indication stops flashing and remains lit.
- When the previously set white balance setting is maintained.
- When you are trying to adjust the white balance in the digital zoom range (21× - 220×). In this case, first adjust the white balance in the optical zoom range (1× – 20×) and then zoom back to within the Digital Zoom Mode.

- We recommend that you adjust the white balance anew whenever there is a change in the recording situation.



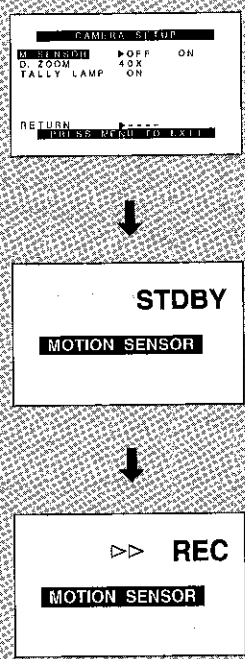


Title

Motion-Sensor-Controlled Recording

In this mode, recording automatically starts when the built-in Motion Sensor detects some movement in the picture.

- Select the desired Date/Time/Title Indications before activating the Motion-Sensor Mode.

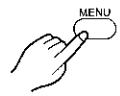


Procedure

1

Press the [MENU] Button.

The [CAMERA FUNCTIONS] Main-Menu appear.



2

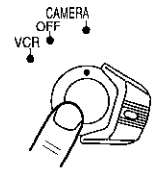
Turn the [▲▼] Dial to select [M.SENSOR].

Cancelling the Motion Sensor Function During Stand-by Mode

Set [M.SENSOR] on the [CAMERA SETUP] Sub-Menu to [OFF].

Cancelling the Motion Sensor Function During Recording

Press the Recording Start/Stop Button for 2 seconds.



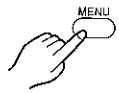
3

Press the [SET] Button to select [ON].

4

Press the [MENU] Button to exit.

The [STDBY] Indication appears.



Approximately 1 second after the Movie Camera's Motion Sensor has detected movement in the picture, recording automatically starts. Approximately 10 seconds after movement in the picture has stopped, recording automatically stops and the Movie Camera is in the Motion Sensor Stand-by Mode.

When the Movie Camera remains in the Motion Sensor Stand-by Mode for more than 6 minutes, the Viewfinder turns off, and the [Ⓐ] Lamp goes out to conserve power.
When the Motion Sensor again detects movement in the picture, recording automatically restarts after approximately 4 seconds, and the Viewfinder turns on, and the [Ⓐ] Lamp lights.

Remarks, etc.

In the Following Recording Situations, the Motion Sensor May Not Work Correctly:

- A white wall or another single-colour background behind the subject.
- A subject with horizontal, vertical or oblique stripes.
- Sudden changes in the surrounding brightness.
- Exposure of the Movie Camera to slight shocks or vibration.
- Recording in a dimly lit place. (The [MOTION SENSOR] Indication flashes.)
- Extremely slow or fast movement of the subject.
- Very little movement of the subject.
- A very small subject.
- Movement of the subject near the edge of the picture.
- A background with horizontal or vertical stripes.

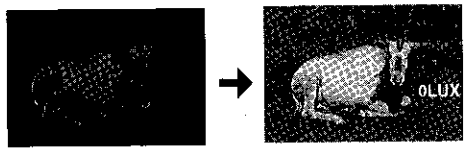
The Following Function Do Not Activate In the Motion Sensor Function Stand-by Mode:

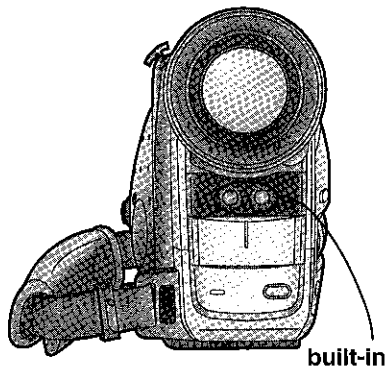
- Nomal Recording
- Super Image Stabilizer
- Digital Zoom
- Digital Effect
- Recording Check
- Camera Search Function.

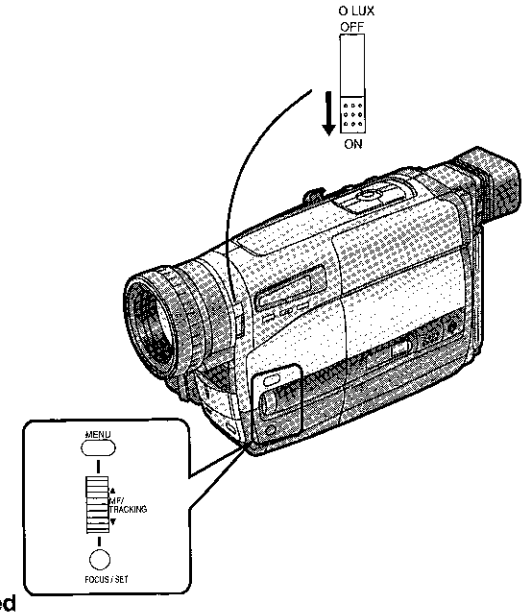
The Following Situations Cancel the Motion Sensor Function:

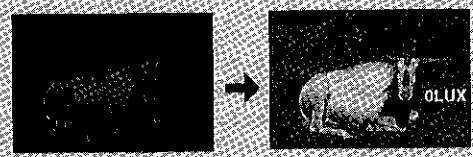
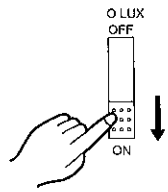
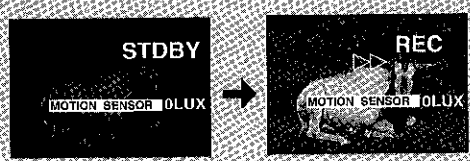
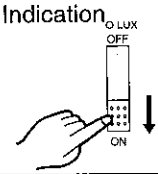
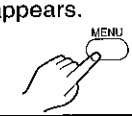
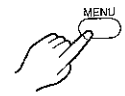
- If there is a power interruption.

- To prevent accidental recording start caused by Movie Camera movement, the Movie Camera should be mounted on a tripod or be otherwise secured in a very stable position.
- Although you can select a Digital Effect on the [DIGITAL EFFECT] Sub-Menu when [M.SENSOR] on the [CAMERA SETUP] Sub-Menu is set to [ON], the Motion Sensor Function has priority and the selected digital effect is automatically cancelled.
- When [M.SENSOR] on the [CAMERA SETUP] Sub-Menu is set to [ON], it is not possible to manually start recording by pressing the Recording Start/ Stop Button or to activate the Recording Check or Camera Search Function.
- When you use the AC adaptor to power the Movie Camera, the Motion Sensor Function Stand-by Mode will continue when no movement is detected in the picture, even when the tape has reached the end during recording. Therefore, we recommend that you check the tape within a week. When you use the Battery to power the Movie Camera, it remains in the Motion Sensor Function Stand-by Mode until the Battery is discharged, at which time the [CAMERA] Lamp flashes for a few seconds.
- To ensure correct functioning of the Motion Sensor Function, the moving subject should be quite large in the picture. Therefore, when you have zoomed the lens to the maximum wide-angle position, the distance between lens and subject should preferably be within about 2 metres. For subjects at larger distances, be sure to zoom in accordingly.
- The Movie Camera requires time to set up before recording starts. Therefore, the beginning of movement is not recorded.

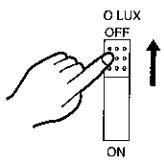






Title	Procedure
Recording in Dark Places Without Any Illumination (0 Lux Night View Function) This function is convenient when you want to record at night in places without any illumination, for example for observing the behaviour of nocturnal animals, etc. In this mode, the Movie Camera emits infrared rays which makes it possible to record subjects that are invisible to the naked eye. 	**1** **Set to [0 LUX OFF/ON] Switch to [ON].** The [0LUX] Indication appears. 
Using the 0 Lux Night View Function together with the Motion-Sensor-Controlled Recording Function in Dark Places without Any Illumination If you use the 0 Lux Night View Function together with the Motion-Sensor-Controlled Recording Function, recording starts automatically when the Movie Camera's built-in Motion Sensor detects some movement in the picture. This combined function is convenient for easy, unattended animal observation recordings at night. 	**1** **Set to [0 LUX OFF/ON] Switch to [ON].** The [0LUX] Indication appears.  **2** **Press the [MENU] Button.** The [CAMERA FUNCTIONS] Main-Menu appears.  **5** **Press the [SET] Button to select [ON].** **6** **Press the [MENU] to exit the Menu.** The [STDBY] Indication appears. 

Cancelling this Function
Set to [0 LUX OFF/ON] Switch to [OFF].
The [0LUX] Indication disappears.



3

Turn the [▲▼] Dial to select the [CAMERA SETUP] Sub-Menu.

The [CAMERA SETUP] Sub-Menu appears.

Cancelling these Function during Stand-by Mode
Set [M.SENSOR] on the [CAMERA SETUP] Sub-Menu to [OFF] and then set the [0 LUX OFF/ON] Switch to [OFF].

4

Turn the [▲▼] Dial to select [M.SENSOR].

Cancelling these Function during Recording
Press the Recording Start/Stop Button for more than 2 seconds and then set the [0 LUX OFF/ON] Switch to [OFF].

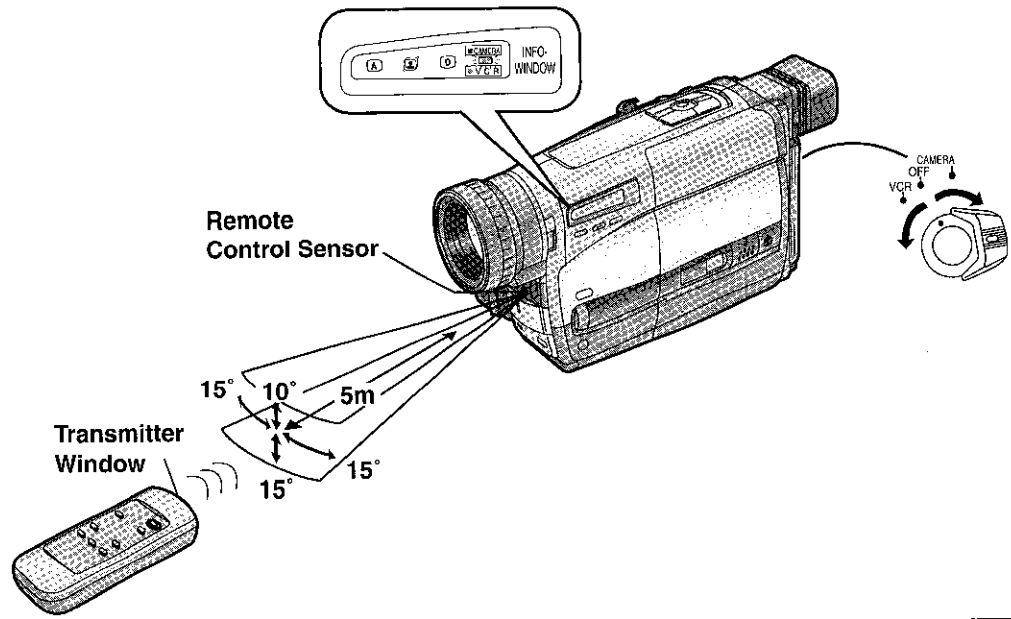
Remarks, etc.

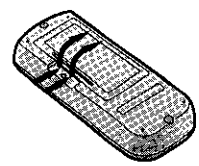
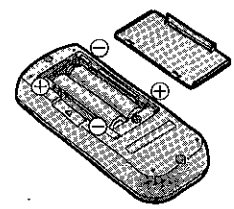
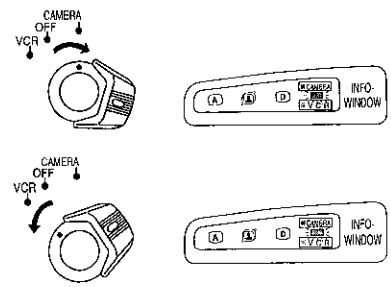
Notes for Recording in Dark Places Without Any Illumination

- The built-in Infra-red Beam Emitters light. Be careful not to cover them with your hand when recording.
- Do not use the 0 Lux Night View Function in brightly lit places and never aim the Movie Camera against the sun, as this could cause irreparable damage.
- The playback picture of scenes recorded with the 0 Lux Night View Function will be in black and white.
- If you change the setting of the [0 LUX OFF/ON] Switch during recording, a switching noise is also recorded.
- When recording in the 0 Lux Night View Function, it is not possible to adjust the white balance manually or to cancel the manually adjusted white balance setting.
- It is not possible to use any of the Programme AE Modes when the 0 Lux Night View Mode is activated.
- When using the 0 Lux Night View Function, the subject should be within 3 metres from the Movie Camera.
- When the automatic focusing is not precise, adjust the focus manually.
- If you do not want the Recording Indicating (Tally) Lamp to light during recording using the 0 Lux Night View Function, set [TALLY LAMP] on the [CAMERA SETUP] Sub-Menu to [OFF].
- If you use the Macro close-up Function and approach extremely close to the subject when recording in the 0 Lux Night View Function, the infra-red beam from the Movie Camera's built-in Infra-red Beam Emitters may not reach the subject.
- As the iris is fully opened in the 0 Lux Night View Mode, subjects in white or other light colours may be recorded whitish, blurred and with weak contrast.

Note for Using the 0 Lux Night View Function together with the Motion-Sensor-Controlled Recording Function

- If you use the Motion Sensor Function together with the 0 Lux Night View Function, the [MOTION SENSOR] Indication flashes, and recording may not be possible in some cases.



Title	Procedure	
Remote Controller **(Only on model NV-RZ2B)** Using the wireless Remote Controller supplied with the Movie Camera allows operating most of the Movie Camera's major functions from a distance. **■ Inserting the Batteries** Insert the supplied batteries before using the Remote Controller. ●Do not mix old batteries with new batteries. ●Do not mix different battery types, i.e. Alkaline and Manganese. ●Do not use rechargeable (Ni-Cd) batteries. ●Do not short-circuit the batteries. ●When you do not use the remote controller for a long time, take out the batteries and store them in a cool, dry place.	**1** **Remove off the Battery Cover.** 	**2** **Insert the batteries with the polarity (⊕ and ⊖) correctly aligned.** 
■ Using the Remote Controller	**1** **Set the [CAMERA/OFF/VCR] Switch on the Movie Camera to [CAMERA] or [VCR].** ●When the [CAMERA] Lamp lights, you can use the recording functions. ●When the [VCR] Lamp lights, you can use the playback functions. 	

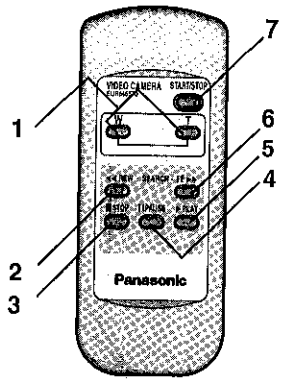
1 **Zoom Buttons [W/T]**
CAMERA Mode: To zoom in and out. (p. 28)

2 **Rewind/Review Button [◀◀]**
To start review playback (p. 32) if pressed during normal playback; and to rewind the tape if pressed in the Stop Mode. Pressing it for more than 3 seconds in the Stop Mode rewinds the tape at high speed. (p. 31)
Also to activate the Camera Search Function (p. 24) in reverse direction if kept pressed in the Recording Pause Mode. Pressing it briefly activates the Recording Check Function (p. 24).

3 **Stop Button [■]**
To stop the tape. (p. 31)

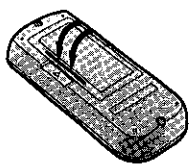
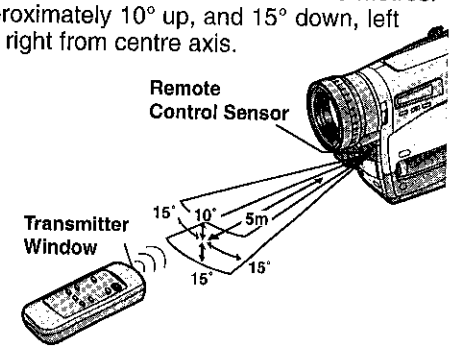
4 **Pause Button [❚❚]**
To pause playback. (p. 33) The playback picture stands still.

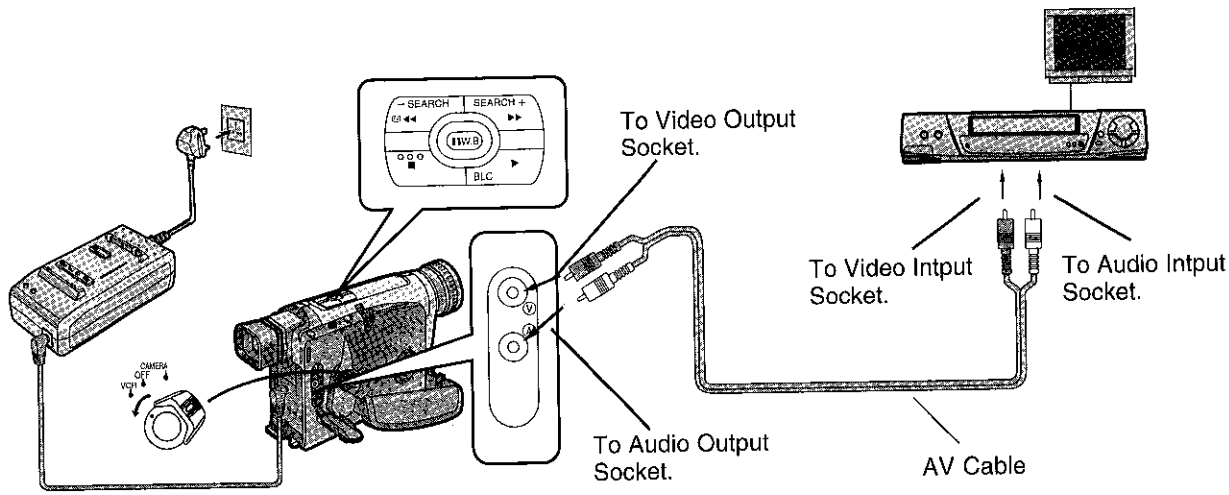
5 **Playback Button [▶]**
To start playback. (p. 30)

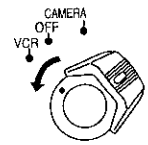
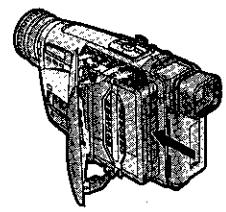


6 **Fast-forward/Cue Button [▶▶]**
To start cue playback (p. 32) if pressed during normal playback; and to fast-forward the tape if pressed in the Stop Mode. Also to activate the Camera Search Function (p. 24).

7 **Recording Start/Stop Button [START/STOP]**
To start and pause recording. (p. 22)

		Remarks, etc.
3 **Replace the Battery Cover.** 	**Replacing the Batteries** The life of the batteries is about 1 year. When the batteries are exhausted, purchase two new "AAA", "UM-4" or "R03" type batteries and insert them in the same way as explained.	■ **CAUTION** Danger of explosion if batteries are incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.
2 **Aim the Remote Controller at the Remote Control Sensor on the Movie Camera and press the appropriate button.** Distance to the Movie Camera: Less than 5 metres. Angle: Approximately 10° up, and 15° down, left and right from centre axis. 		•The operative range described on the left is valid for using the Remote Controller indoors. When using it outdoors or under strong lights, it may not work correctly even within the left range. •Do not cover the Transmitter Window on the Remote Controller with your hand, etc. •The zoom speed cannot be changed from the Remote Controller. To prevent inadvertent operation by other infrared remote controllers, the Movie Camera needs to receive each command signal three times. For this reason, there is a slight delay between pressing the [W] or [T] Button on the Remote Controller and the actual operation of the zoom function on the Movie Camera.



Title	Procedure	
Copying onto an S-VHS (or VHS) Cassette **(Dubbing)** By connecting the AV Cable, you can copy the cassette recorded with this Movie Camera onto a VCR.	***1*** **Movie Camera: Set the [CAMERA/OFF/ VCR] Switch to [VCR].** 	***2*** **Movie Camera: Insert the recorded cassette.** 
	5 **VCR: Start recording.**	***6*** **VCR: Press the Pause or Stop Button to stop recording.**

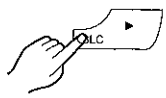
3

VCR:
Insert an unrecorded cassette with intact erasure prevention tab.

- As some settings (external input, tape speed, etc.) on the VCR are necessary, please refer to your VCR's operating instructions.

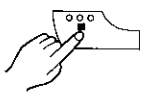
4

Movie Camera:
Press the [▶] Button to start playback.



7

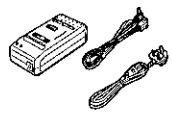
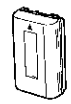
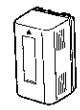
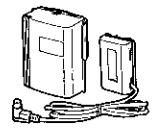
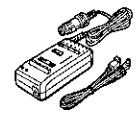
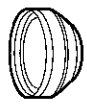
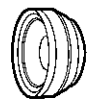
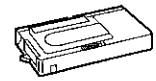
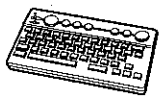
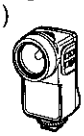
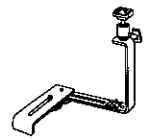
Movie Camera:
Press the [■] Button to stop playback.



Remarks, etc.

- Also read the Operating Instructions of the VCR.
- If your VCR is not equipped with AV Input Sockets, the 21-pin Adaptor (purchase separately) is necessary.
  Consult your dealer.
- The picture quality deteriorates slightly in the dubbing process, however, this can be minimized by selecting the standard recording speed (SP Mode) on the VCR.
- For all additional scenes that you want to dub, follow steps 4 to 7.

Optional Accessories

AC Adaptor VW-AS7B 	Battery Pack CGR-V610 	Battery Pack CGR-V620 	Battery Pack CGR-V816 	Car Battery Charger VW-KBC7E 
Filter Kit VW-LF43WE 	Tele Conversion Lens VW-LT4314WE 	Wide Conversion Lens VW-LW4307WE 	Tripod VZ-CT55E 	Cassette Adaptor VW-TCA7E 
Video Titler VW-VT1B 	IR/Video DC Light VZ-LDR10E (Halogen&Infra-red) 	Shoe Adaptor VW-SK11E 		

Notes:
- Consult your dealer for details of other accessories not listed here.
- Some accessories are not available in some countries.

IR/Video DC Light (VZ-LDR10E)

It requires the Shoe Adaptor (VW-SK11E) for attaching to the Movie Camera. With this Movie Camera, its infra-red beam emission function has no effect.

Charging Time and Maximum Time for Continuous Recording

Battery No.	Charging Time for a Full Charge	Max. Continuous Recording Time	Max. Continuous Recording Time for Approx. 30-Minute Charging
CGR-V610 (supplied)	1 h 20 min.	2 h.	50 min.
CGR-V620	2 h 25 min.	4 h.	50 min.
CGR-V816	5 h 10 min.	8 h.	50 min.

(The times shown in the above chart are approximations.)

Take care that no water enters the Movie Camera when using it in the rain and snow or on the beach.
- The Movie Camera and the cassette could become damaged. (It might not be repairable.)
- If seawater has accidentally splashed on the Movie Camera, moisten a soft cloth with tap water, wring it well and wipe the camera body carefully with it. Then thoroughly wipe it with a soft, dry cloth.

Keep the Movie Camera away from magnetized equipment (TVs, video games, etc.).
- If you use the Movie Camera on or near a TV, the electromagnetic radiation may cause picture and sound distortion.
- Strong magnetic fields generated by speakers and large motors may damage the recordings on the tape and distort the picture.
- The electromagnetic radiation from micro-processors can adversely influence the Movie Camera and cause picture and sound distortion.
- If the Movie Camera is adversely influenced by magnetized equipment and does not work correctly, turn the Movie Camera off, remove the Battery or disconnect the AC Adaptor and attach the Battery or connect the AC Adaptor again. Then turn the Movie Camera on.

Do not use the Movie Camera near a radio transmitter or high-voltage power line.
- If you record near a radio transmitter or high-voltage power line, the recorded picture and sound may be adversely influenced.

Do not use the Movie Camera for surveillance and other industrial application.
- If the Movie Camera is being used for a long time, the inside temperature could rise excessively and this may cause malfunction.
- This Movie Camera is not designed for industrial use.

Take care that no sand and fine dust enters the Movie Camera when using it on a beach or similar places.
- Sand and dust could damage the Movie Camera and cassette. (Be careful when inserting and removing the cassette.)

Do not spray insecticide or volatile agents on the Movie Camera.
- Such agents could deform the body and cause the surface coating to peel off.
- Do not leave the Movie Camera in direct contact with rubber or plastic products for a long time.

Do not use benzine or thinner for cleaning.
- They could deform the body and cause the surface coating to peel off.
- Before cleaning, remove the Battery or unplug the AC Mains Lead from the AC mains socket.
- Wipe the Movie Camera with a soft, clean cloth. To remove persistent stains, wipe with a cloth moistened with mild detergent diluted with water, and then finish with a dry cloth.

After use, always take out the cassette and remove the Battery or unplug the AC Mains Lead from the AC mains socket.
- If you leave the cassette in the Movie Camera, the tape can become loosened and damaged.
- If you leave the battery attached to the Movie Camera for a long time, the voltage level may drop very low so that the Battery cannot be used any more even after charging.

Notes about the AC Adaptor
- If the temperature of the Battery is extremely high or extremely low, the [CHARGE] Lamp may keep on flashing and charging is not possible. After the Battery has cooled down or warmed up sufficiently, charging starts automatically. However, if the [CHARGE] Lamp continues to flash after the Battery has cooled down or warmed up sufficiently, some malfunction may have occurred in the Battery or in the AC Adaptor. In this case, consult with your dealer.
- When the battery is warm, charging takes longer than usual.
- When you use the AC Adaptor near a radio, the radio reception may be distorted. Keep the AC Adaptor more than 1 metre away from the radio.
- When the AC Adaptor is in use, it may emit a whirring sound. However, this is normal.
- After use, be sure to disconnect the AC Mains Lead from the AC mains socket. (If you leave it connected, a small amount of electricity is consumed.)
- Always keep the terminals of the AC Adaptor and the battery clean.
- Do not handle with wet hands.

■ Condensation

If Condensation Has Formed Inside the Movie Camera, Recording is Not Possible.

Symptoms of Condensation
If the following symptoms occur, condensation has formed inside the Movie Camera.

❶ **The Condensation Indication "U10/[▲]" in the Viewfinder flashes.**
After this indication flashes for a few seconds, the Movie Camera automatically turns off.)

❷ **When you turn on the Movie Camera, it turns off.**
However, the Movie Camera also turns off when the Battery is discharged.

Remedy
❶ Wait a few hours before operating the Movie Camera again.
(The actual time depends on the surrounding conditions.)

❷ Turn on the Movie Camera.

❸ Confirm that the Condensation Indication is not displayed any more.

❹ For added safety, wait about 1 more hour.

Remarks about Condensation
- Condensation can form if the Movie Camera is suddenly brought from cold surroundings to a place where it is hot or humid.
- Since condensation forms gradually, there may already be some condensation inside the Movie Camera even before the Condensation Indication begins to flash.
- In an extremely cold place, condensation may freeze and turn into frost. As the Movie Camera cannot detect frost, the Condensation Indication does not appear until the frost melts.

Precautions against Condensation
When moving it from a very cold place to a very warm place, keep it in a tightly closed plastic bag or similar to prevent condensation from forming.

■ Cautions for Transport
- When not actually recording, carry the Movie Camera in a specially designed Carrying Case.
- Keep the packing materials. When transporting the Movie Camera in the future, pack it in the same way as it was when you purchased it.

■ Optimum Use of the Battery

Special Characteristics of the Battery
This Battery is a rechargeable lithium-ion battery. Its ability to generate electric energy is based on an internal chemical reaction. This reaction is easily influenced by ambient temperature and humidity, and the useful operation time that the Battery can provide becomes shorter at high and low temperatures. When used in extremely cold surroundings, the Battery may only be able to provide approximately 5 minutes of operation time. If the Battery becomes extremely hot, a protection function is activated and prevents the use of the Battery for some time.

After Use, Always Remove the Battery.
Be sure to remove the Battery from the Movie Camera. (If it is attached to the Movie Camera, a small amount of electric current is consumed even if the Movie Camera is turned off.) Leaving the Battery attached to the Movie Camera for a very long time could cause it to become excessively discharged, so that it cannot be used any more even after charging.

Discarding a Battery That Has Become Unusable
- The usable life of the Battery is limited.
- Do not throw the Battery in a fire because it could explode.

Keep the Battery's Terminals Clean.
Be careful that the terminals do not get plugged up with dust, dirt or other substances.
If you accidentally drop the Battery, confirm that the Battery itself and the terminals are not deformed. Attaching a deformed Battery to the Movie Camera or to the AC Adaptor could damage the Movie Camera or the AC Adaptor.

■ Precautions for Storage

Before Storing the Movie Camera, Take out the Cassette and Remove the Battery.
Store all equipment in a dry place where the temperature remains relatively constant. (Recommended temperature is 15°C–25°C and recommended relative humidity is 40%–60%.)

Movie Camera
- Wrap it with a soft cloth to prevent dust form entering.
- Never leave the Movie Camera in place with high temperature.

Battery
- Extremely low or high temperature shortens the Battery life.
- Storing it in places with oily smoke and a lot of dust could cause the terminals to get rusty, and this can result in a malfunction.
- **Do not allow metal objects (such as necklaces and hair pins) to touch the battery terminals. Short-circuiting may occur and generate heat, and touching it in this condition could inflict serious burns.**
- Store the Battery in discharged condition. If you store the Battery for a long time, we recommend that you charge it once a year and completely use up the charge before storing it again in discharged condition.

Cassette
- Rewind the tape to its beginning before storing. Leaving the cassette with the tape stopped halfway for more than 6 months (depending on the storing condition) loosens the tape. Be sure to rewind it to the beginning.
- Put the cassette in its case to store it. Dust, direct sunlight (ultraviolet rays) and humidity could damage the tape. Dust contains hard mineral particles and cassettes with dust damage the video heads and other parts of the Movie Camera. Make it a habit to always put the cassette back into its case.
- Completely wind the tape forward and then rewind it once every half year. Leaving the cassette for more than a year without winding/rewinding it may deform the cassette because of stretching and shrinking of the tape due to changes in temperature and humidity. Also, the tape may stick together.
- Do not place the cassette near strongly magnetized objects or equipment.
- The tape surface is coated with microscopic magnetic particles and they record signals. Such objects as magnetic necklaces and toys have stronger magnetic force than commonly thought, and this could erase the recorded contents and cause noise in picture and sound.

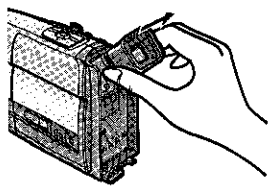
■ Other Useful Information

Viewfinder

- Do not leave the Viewfinder or the Lens aimed at the sun. This could seriously damage internal parts.

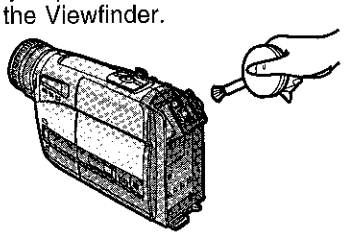
Cleaning the Viewfinder

1 Push the Buttons on both sides of the Viewfinder and remove it in the direction of the arrow.

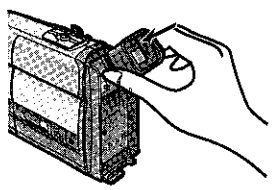


2 Remove dust with a blower brush (not supplied).

If you use a cotton swab or similar to clean the inside of the Viewfinder, use it very carefully to prevent scratching the screen inside the Viewfinder.

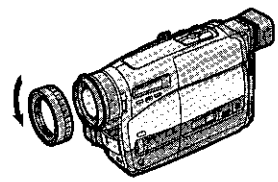


3 To re-attach the Viewfinder, push it forward onto the Viewfinder Tube until it locks with a click.



Lens Hood

- When you want to attach the Tele Conversion Lens (VW-LT4314WE, optional), the Wide Conversion Lens (VW-LW4307WE, optional) or a filter of the Filter Kit (VW-LF43WE, optional), be sure to first remove the Lens Hood by turning it counterclockwise. If you attach a filter of the Filter Kit, you can attach the Lens Hood onto it.

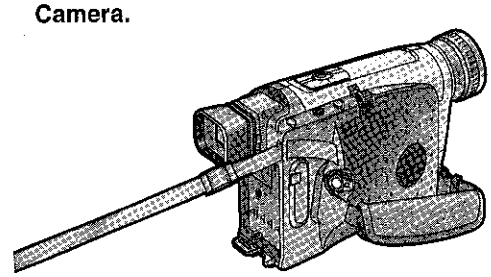


- During recording with a filter or conversions lens attached, the four corners of the picture may become dark (vignetting effect), when you push the [W/T] Zoom Lever toward [W]. For details, please also read the operating instructions of the accessory being used.

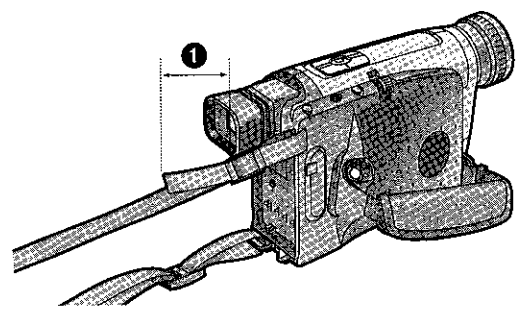
Attaching the Shoulder Strap

Before you go recording outside, we recommend that you attach the Shoulder Strap to prevent the Movie Camera from dropping accidentally.

1 Pull the end of the Shoulder Strap through the Shoulder Strap Holder on the Movie Camera.



2 Fold the end of the Shoulder Strap back and pull it through the Shoulder Strap Length Adjuster so that it stands out more than 2 cm ❶ to prevent it from slipping off.



■ Focus

If you look at an object through a magnifying glass and move it closer or further away from your eye, you will reach a point where the object becomes clearly visible. Being focused or in focus means that the subject can be seen with optimum clarity and sharpness.

Human Eyes
Human eyes have lenses as well, and when we look at objects at different distances, the shape of these lenses changes automatically so that we can always see these objects clearly.

Movie Camera
The image of the subject enters the Movie Camera through the lens and is converted into an electric signal (video signal) for recording onto magnetic tape. The focus is adjusted either manually or automatically by moving a focusing lens.

Auto Focus Adjustment
The Auto Focus System automatically moves the internal focusing lens forward or backward and adjusts the focus so that the subject can be seen clearly.
The Auto Focus Adjustment has the following characteristics:
- It adjusts until the vertical contours of the subject are as sharp and clean as possible.
- It adjusts the focus on the subjects with strong contrast.
- It adjusts the focus on the subject in the centre of the Viewfinder.
  Unlike human eyes, the lens of the Movie Camera cannot instantaneously change the focus from a nearby to a distant subject and vice versa.

For the following subjects and recording situations, the Auto Focus system cannot provide precise adjustment. Use the Manual Focus Mode instead. (p. 26)

❶ Recording subjects with a part of it near the Movie Camera and another part far away from it
As the Auto Focus adjusts on the centre part of the image, it is often impossible to bring the nearby and distant parts of the subject into focus.
When you want to record a person with a distant mountain in the back, it is not possible to focus on both.

❷ Recording subjects behind glass covered with dirt or dust
As the focus is adjusted on the dirty glass, the subject behind the glass is out of focus. When recording a subject across a street on which cars are running, the focus may be adjusted on the cars.

❸ Recording subjects in dark surroundings
As the amount of light information entering through the lens is greatly reduced, the Movie Camera cannot adjust the focus precisely.

❹ Recording subjects surrounded by objects with shiny surfaces or much light reflection
As the Movie Camera adjusts the focus on objects with shiny surfaces or much light reflection, the subject may go out of focus. Therefore, when recording at a lake or the sea, evening scenes, fireworks, or under special types of lighting, the subject may be out of focus.

❺ Recording fast-moving subjects
As the internal focusing lens is moved mechanically, it cannot follow fast-moving subjects without delay.
Therefore, subjects like children running back and forth may temporarily go out of focus.

❻ Subjects with weak contrast
As the Movie Camera adjusts the focus based on vertical contours in the picture, subjects with little contrast such as a white wall may be out of focus.

■ White Balance Adjustment

While most recording with a Movie Camera is probably done outdoors under sunlight, video recording is also done very often under artificial light sources, both indoors and outdoors. However, each of these light sources gives the subject slightly different colours.

Human Eyes
Human eyes can easily adjust to different kinds of lighting and see an object with the same colours even under different lighting.

Movie Camera
Unlike human eyes, the Movie Camera does not have the innate ability to adapt to changes in lighting, and they influence the colours being recorded. Therefore, depending on the light source, the picture would be recorded with a bluish or reddish tint. To minimise the influence of the lighting on the colours of the subject, an adjustment called White Balance Adjustment is necessary.

White Balance Adjustment
The White Balance Adjustment determines the colour of the light and adjusts the colours so that white remains pure white. As white is the basic colour of the entire colour spectrum, if white is reproduced correctly, the other colours are correct and natural, too.

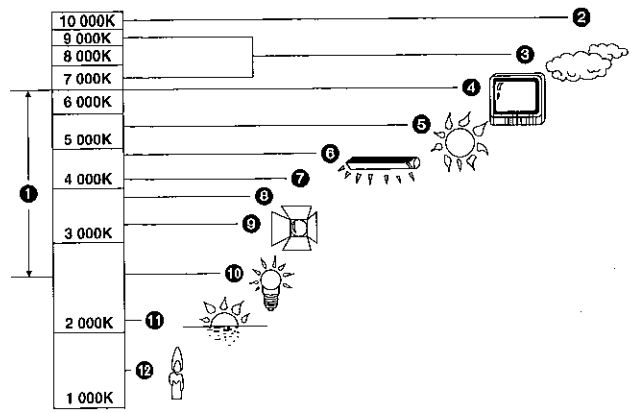
Auto White Balance Adjustment
This Movie Camera stores the optimum settings for several common light sources in memory. The Movie Camera judges the recording situation by determining the tint of the light received through the lens and by the White Balance Sensor (p. 4), and it selects the setting for the most similar tint. This function is called Auto White Balance Adjustment.
However, as the white balance settings for only a few light sources are stored in memory, the white balance is not correctly adjusted for other lighting conditions.

For the range of different types of lighting within which the Auto White Balance Function can provide precise adjustment, refer to the chart. For recording under lighting conditions outside this range, the Auto White Balance Function does not work correctly, and the recorded picture has a red or blue cast. However, the same also applies, if the subject is lit by more than one light source, even if these light sources are within this range.

■ Colour Temperature

Every light source has its own colour temperature measured in Kelvin (K). The higher the Kelvin value, the more bluish the light; the lower the value, the more reddish the light. The Kelvin value is related to the tint of the light, but not directly to its brightness.
The range ❶ indicated in the illustration below shows the light sources for which this Movie Camera can provide precise white balance adjustment and, therefore, natural colours in the recorded pictures, when using the Full Auto Mode. For light sources outside this range, adjust the white balance manually (p. 54). Also, additional lighting may be necessary.

❶ Control range of this Movie Camera's Auto White Balance Adjustment Mode
❷ Blue Sky
❸ Cloudy sky (Rain)
❹ TV screen
❺ Sunlight
❻ White fluorescent lamp
❼ 2 hours after sunrise or before sunset
❽ 1 hour after sunrise or before sunset
❾ Halogen light bulb
❿ Incandescent light bulb
⓫ Sunrise or sunset
⓬ Candlelight



■ Counter Reset Function

Before starting to record or play back to reset the Elapsed Tape Time Indication to [0:00.00].

1 Set [C.RESET] on the [OTHER FUNCTIONS] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu to [YES].

- When recording or playback starts, the elapsed tape time is indicated in hours, minutes and seconds. During playback of parts of the tape on which no recording has been made, this indication does not change.
- If you rewind the tape further than the tape counter position [0:00.00], the minus sign [–] appears in front of the Tape Counter Indication.
- The Tape Counter Indication is automatically reset to [0:00.00] when you take out the cassette, remove the Battery or use the High-Speed Rewinding Function.

■ Memory Stop Function

The Memory Stop Function is convenient for the following operations.

Rewinding or fast-forwarding the tape to a desired position

1 Reset the Tape Counter to zero at the tape position from which you want to play back later.

2 Set [DISPLAY] on the [OTHER FUNCTIONS] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu to [MEMORY].

3 Start playback or recording.

4 After playback or recording is finished:
Set the [CAMERA/OFF/VCR] Switch to [VCR].

5 Rewind the tape.
The tape automatically stops approximately at the position at which you reset the counter to zero.

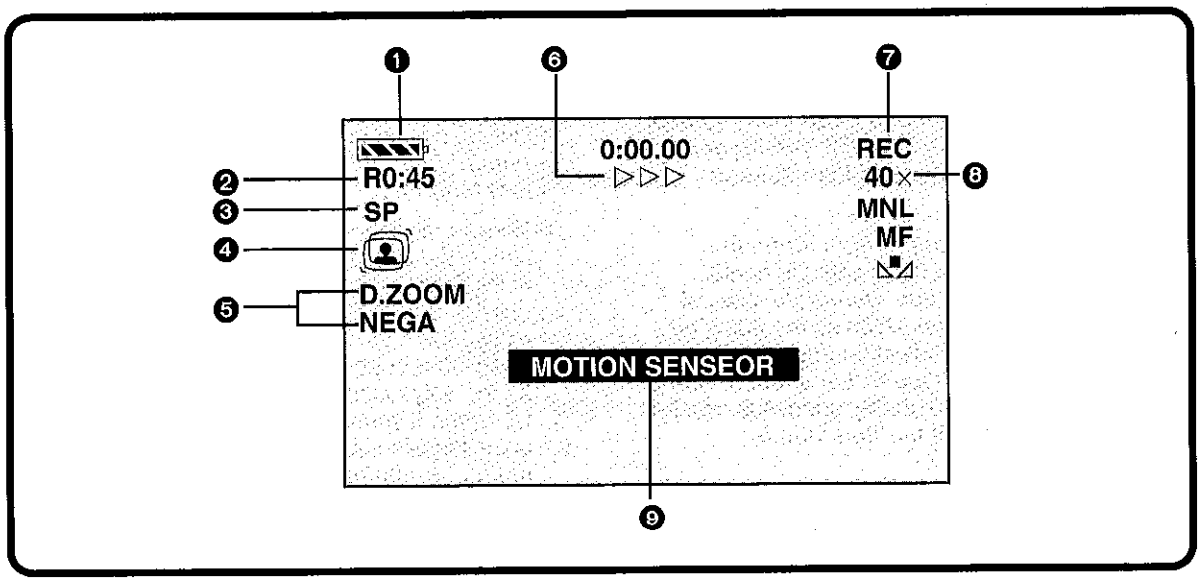
- During High-Speed Rewinding, the Tape Counter shows [0:00.00]. However, this does not activate the Memory Stop Function.

■ Demonstration Mode

When the Movie Camera is turned on and in the Camera Mode without any cassette inserted, and you leave it for 10 minutes without activating any function, it automatically switches over to the Demonstration Mode which demonstrates its many functions.

- You can also start the Demonstration Mode by setting [DEMO MODE] on the [OTHER FUNCTIONS] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu to [ON] and then exiting the menu.
- Pressing a button or displaying a menu temporarily suspends the Demonstration Mode. However, if you leave the Movie Camera in this condition without activating any function for more than approximately 10 minutes, the Demonstration Mode resumes.
- If you do not want the Demonstration Mode to be activated, set [DEMO MODE] on the menu to [OFF].
- If you set the [CAMERA/OFF/VCR] Switch to [CAMERA] while pressing the [▶] Button, [DEMO MODE] on the menu is automatically set to [ON] and the Demonstration Mode starts immediately.
- If you set the [CAMERA/OFF/VCR] Switch to [CAMERA] while pressing the [■] Button, [DEMO MODE] is automatically set to [OFF].

Indications in the Viewfinder



❶ Remaining Battery Power
As the remaining battery power decreases, the indication changes as follows:
→ → . When the battery is completely discharged, the Indication flashes.

❷ Remaining Tape Time (p. 19)
The remaining tape time is displayed in minutes. (When it becomes less than 2 minutes, the indication starts to flash.)
- The displayed remaining tape time may be shorter than the actual remaining tape time.

Tape Length (p. 19)
The Tape Length Indication should be matched to the tape length of the inserted cassette (EC30, EC45 or EC60) to ensure correct indication of the remaining tape time.

❸ Recording Speed Mode (p. 15)
The selected Recording Speed Mode is displayed.
SP: Standard-play Mode
LP: Long-play Mode

❹ Super Image Stabilizer (p. 46)
: When the Super Image Stabilizer Function is activated, this indication is displayed.

❺ Digital Zoom (p. 46)
D.ZOOM: When the Digital Zoom function is activated, this indication is displayed.

Digital Effects (p. 44)
When a digital effect is activated, the corresponding indication is displayed.

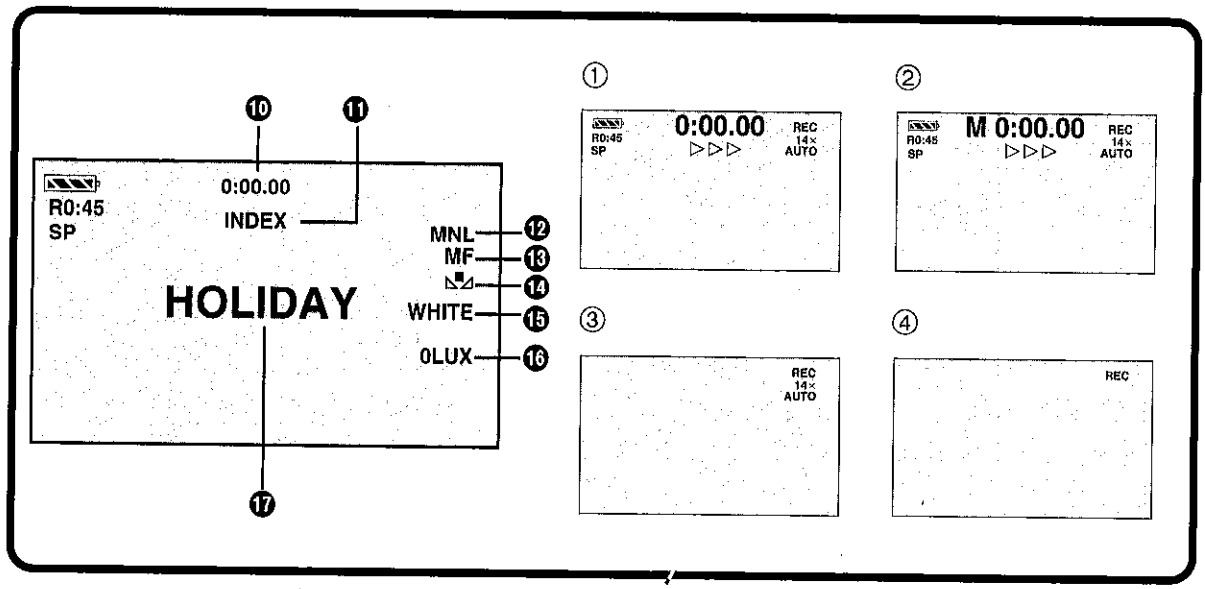
❻ Tape movement during recording

❼ Tape Run Indications

REC:	Recording (p. 22)
PAUSE:	Recording Pause (p. 23)
▷:	Playback (p. 30)/Camera Search in forward direction (p. 24)
❚❚:	Still playback (p. 33)
▷▷:	Fast-forward/Cue playback (p. 30, 32)
◁◁:	Rewind/Review playback (p. 30, 32)
◁◁◁:	High-Speed Rewind (p. 31)
CHK:	Recording check (p. 24)
STDBY:	Motion-Sensor-Controlled Recording Function Stand-by Mode (p. 56)

❽ Zoom Magnification (p. 28, 46)
When you push the [W/T] Zoom Lever up or down, the Zoom Magnification Indication and the Zoom Gauge are displayed.

❾ Motion-Sensor-Controlled Recording Mode (p. 56)
When the Motion-Sensor-Controlled Recording Mode is activated, this indication is displayed.



⑩ Tape Counter
The Elapsed Tape Time, Memory Stop Function Indication is displayed. (p.71)

⑪ Index (p. 23)
The [INDEX] Indication flashes for a few seconds while an index signal is being recorded.

⑫ Recording Mode (p. 22, 26, 54)
AUTO: When the Auto Mode is activated, this indication is displayed.
MNL: When the Manual Mode is activated, this indication is displayed.

Programme AE Mode (p. 42)
The Programme AE Function offers the following settings:
: Sports Mode
: Portrait Mode
: Low Light Mode
: Spotlight Mode
: Surf & Snow Mode

⑬ Manual Focus (p. 26)
If you select the Manual Focus Mode, the [MF] Indication is displayed.

Tracking Adjustment Mode (p. 32)
If you select the Tracking adjustment Mode, the [TRACK.] Indication is displayed.

⑭ White Balance Mode (p. 54)
: When the White Balance Mode is activated, this indication is displayed.

When the Movie Camera is in the Auto Mode, the above indication is not displayed.

⑮ Colour Indication for Digital Image (p. 38, 52)
This indication shows the colour selected for a title that you have stored in memory or pre-programmed title.

⑯ 0 Lux Night View Mode (p. 58)
When the 0 Lux Nighit View Mode is activated, this indication is displayed.

⑰ Title (large indication) (p. 52)
This indication shows the selected pre-programmed large title.

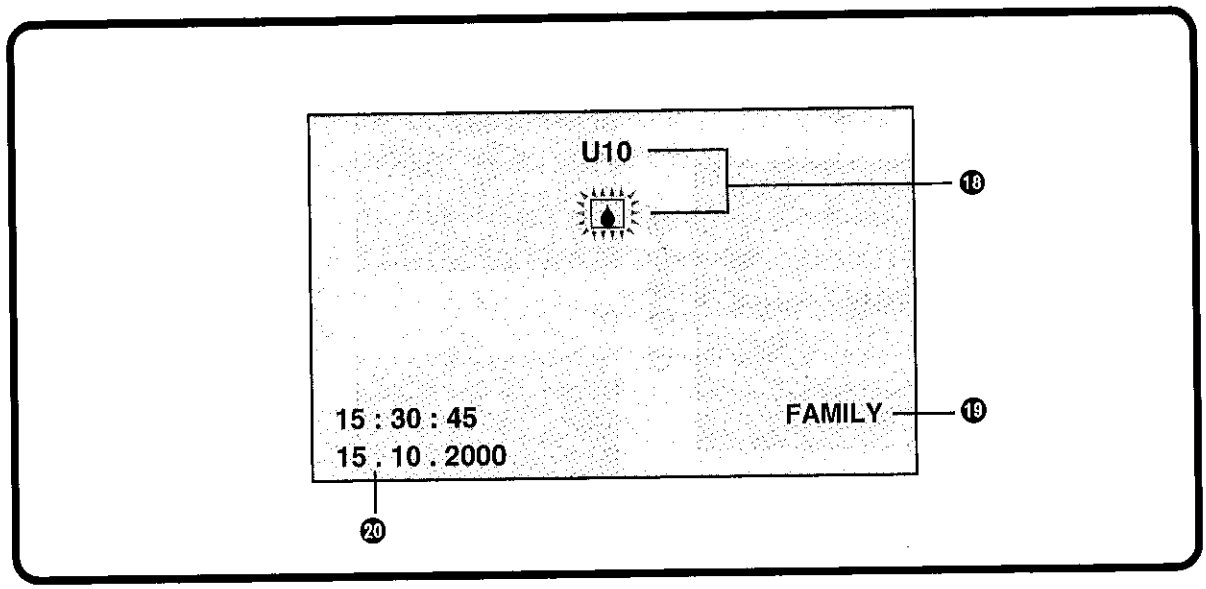
Changing the Indications
By changing the setting for [DISPLAY] on the [OTHER FUNCTIONS] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu, the Counter Display Mode can be changed in the order shown in the above illustrations ① – ④ in [CAMERA] Mode, and ①, ② and ④ in [VCR] Mode.

① **ALL:** Elapsed Tape Time Indication (initial setting)

② **MEMORY:** Memory Stop Indication and Elapsed Tape Time Indication (p. 71)

③ **PARTIAL:** No Counter Indication
Only a few indications are displayed so that all parts of the picture can be seen clearly. However, when you turn on the Movie Camera, all indications initially appear for a few seconds to inform you of the selected settings.
- In this condition, if you switch the Movie Camera over to the VCR Mode and then back to the Camera Mode, [ALL] is automatically selected for the Tape Counter Indication.

④ **OFF:** No Counter Indication
In this mode, only the Operation Mode Indications and Warning/Alarm Indications can appear. However, when turning on the Movie Camera, all indications appear for a few seconds to inform you of the selected settings.



⓲ Warning/Alarm
When any of the following indications lights or flashes, confirm the condition of the Movie Camera.

U10/[💧]:	Condensation has occurred. (p. 66)
📼:	The erasure prevention tab of the inserted cassette is broken out. (p. 19)
	No cassette is inserted. (p. 18)
🔋:	The Battery is discharged. Charge it. (p. 8)
🔋:	The button-type battery is exhausted. Replace it with a new one. (p. 11)
U11/⊗:	The heads are dirty. (p. 77)
📼END:	During recording, the tape has reached its end.

⓳ Title (small indication) (p. 52)
This indication shows the selected pre-programmed small title.

⓴ Date and Time (p. 28)
The time is indicated in the 24-hour system.

Specifications

VHS-C Movie Camera

Information for your safety

Power Source:	DC 7.2V (Battery) DC 7.9V (via AC Adaptor)
Power Consumption:	Recording: 4.7 W

Tape Format:	VHS-C Cassette
Recording/Playback Time:	LP: 2 hours with EC60
VIDEO	
Television System:	CCIR: 625 lines, 50 fields PAL colour signal
Output Level:	VIDEO OUT (PHONO); 1.0 Vp-p, 75 ohm terminated
Audio	
Output Level/ Impedance:	AUDIO OUT (PHONO); –6 dBV (47 kohm loaded)/less than 1 kohm
Audio Track:	1 track (Normal – Monaural)
Image Sensor:	1/5-inch CCD Image Sensor
Lens:	20:1 Power Zoom Lens (optical capability), F1.6 Focal Length; 2.9 – 58mm, Digital AI Auto Focus/Auto Iris Filter Diameter; 43 mm
Viewfinder:	0.24-inch Electronic Viewfinder
Standard Illumination:	1,400 lx
Operating Temperature:	0°C–40°C
Operating Humidity:	10%–80%
Dimensions:	81 (W) × 118 (H) × 231 (D) mm
Weight:	Approx. 740 g (without Battery)

AC Adaptor

Information for your safety

Power Source:	AC 100–240 V, 50/60 Hz
Power Consumption:	27 W
DC Output:	DC 7.9 V, 8.5 W (Movie Camera Operation) DC 8.4 V, 1.4 A (Battery Charging)

Dimensions:	72 (W) × 49 (H) × 143 (D) mm
Weight:	Approx. 235 g

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Power Supply

P1: The Movie Camera does not turn on.
S1: Is the Battery or the AC Adaptor connected correctly? Confirm the connection. (p. 6, 8)

P2: The Movie Camera has turned off automatically.
S2: If you leave the Movie Camera in the Recording Pause Mode for more than 6 minutes, it automatically switches off to protect the tape and to conserve battery power. (p. 23) Set the [CAMERA/OFF/VCR] Switch to [OFF], and then set it [CAMERA] again.

P3: The Movie Camera quickly turns off.
S3-1: Is the Battery discharged? When the Remaining Battery Operation Time Indication shows "0:00" or the [ ] Indication is flashing, the Battery is discharged. Charge the Battery or attach a fully charged Battery. (p. 8)
S3-2: Has condensation formed? If the Movie Camera is brought from a cold to a warm place, condensation may form inside. In this case, the Movie Camera automatically switches off and no operation can be performed except taking out the cassette. Wait until the Condensation Indication disappears. (approximately 2 - 3 hours) (p. 66)

Battery

P1: The Battery discharges quickly.
S1-1: Is the Battery fully charged? Charge it until the [CHARGE] Lamp on the AC Adaptor goes off. (p. 8)
S1-2: Are you using the Battery in a place where the temperature is very low? The ambient temperature greatly influences the Battery's performance. Its operation time becomes shorter in a cold place. (p. 67)
S1-3: Has the Battery reached the end of its service life? The service life of the Battery is limited. It depends on the way the Battery is used, but when the operation time even after proper charging is too short for normal use, the service life of the Battery has reached its end.

P2: The Battery cannot be charged.
S2: If the DC Input Lead is connected to the AC Adaptor, charging is not possible. Disconnect the DC Input Lead.

Normal Recording

P1: Recording cannot be started even though the Movie Camera is supplied with power and the cassette is inserted correctly.
S1-1: The tab of the inserted cassette is broken out. Insert a cassette with intact tab. Or cover the hole where the tab was with two layers of adhesive tape. (p. 19)
S1-2: Has the tape reached its end? Insert a new cassette. (p. 18)
S1-3: Is the Movie Camera turned on? (p. 22)
S1-4: Is the [CAMERA/OFF/VCR] Switch set to [CAMERA]? When it is set to [VCR], recording is not possible. (p. 22)
S1-5: Is the Condensation Indicaiton [ ] displayed? When condensation has formed, no functions except taking out the cassette can be operated. Wait until the Condensation Indicaiton disappears. (p. 66)

Other Recording

P1: The Auto Focus Function does not work.
S1-1: Is the Manual Focus Mode selected? If you select the Auto Focus Mode, the focus is adjusted automatically. (p. 26)
S1-2: Is the subject or recording situation suitable for the Auto Focus Mode? The Auto Focus Function does not work correctly for some kinds of subjects and recording situations. In this case, use the Manual Focus Mode to adjust the focus. (p. 69)

Cassette

P1: The Remaining Tape Time Indication is not correct.

S1: Is the tape length of the inserted cassette correctly selected? Select the correct tape length. (p. 19)

P2: The Movie Camera and cassettes underwent security X-ray inspection at an airport. Does this affect the cassettes?

S2: No, this has no negative influence on the Movie Camera or the cassettes.

P3: When playing back a cassette that was stored for some time, the picture is distorted.

S3: The cassette was stored in an unsuitable place (dusty, humid, hot, etc.) or near strongly magnetized objects or equipment. Unfortunately, there is no remedy. Always store the cassettes correctly. (p. 67)

Playback (Picture)

P1: No playback picture is reproduced when pressing the Play Button [▶].

S1: Is the [CAMERA/OFF/VCR] Switch set to [VCR]? When it is set to [CAMERA], playback is not possible. (p. 30)

P2: The playback picture is distorted or contains noise bars.

S2-1: The tape in the cassette is loose. Tighten it. (p. 18)

S2-2: The video heads are dirty. The "U11/⊠" Indication appears in the Viewfinder. Consult with qualified service personnel.

S2-3: The tracking is not adjusted correctly. Adjust the tracking correctly. (p. 34)

P3: The Movie Camera is correctly connected to a TV, but no playback picture is reproduced.

S3: Did you select "Video Input" on the TV? Carefully read the operating instructions for your TV and select the channel that matches the input sockets used for connection.

P4: The playback picture is not in colour.

S4-1: The colour adjustment on the TV is not made properly. Adjust the colour control on the TV.

S4-2: The playback picture of scenes recorded with the 0-Lux Night View Function is in black and white. This is not a malfunction.

Others

P1: The cassette cannot be taken out.

S1-1: Is the Movie Camera supplied with power? Is the AC Adaptor correctly connected or the Battery correctly attached? To remove the cassette, the Movie Camera must be supplied with power, however, it is not necessary to set the [CAMERA/OFF/VCR] Switch to [CAMERA] or [VCR]. (p. 6, 8)

S1-2: The attached Battery may be discharged. Replace it with a charged Battery. (p. 8)

P2: No operation except taking out the cassette can be performed.

S2: Is the Condensation Indication [💧] displayed? If condensation has formed inside the Movie Camera, it automatically switches off and prevents all operations except taking out the cassette. Wait until the Condensation Indication disappears. (p. 66)

P3: The Remote Controller does not work.

S3-1: The batteries in the Remote Controller are exhausted. Replace them with new "AAA", "UM-4", "R03" type batteries. (p. 60)

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